Set Composition Induces People To Buy More

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Overbuying is a major social problem and is the primary cause of climate change (Cho 2020). Yet, consumers often indulge in unnecessary, redundant purchases, sometimes due to identity-relevant motives (Leung et al. 2021) and acquisition practices (Zhang and Gao 2016), other times due to a mere desire to perfect an owned set of possessions. Indeed, prior research showed that *aesthetic* features of a product, such as how well it fits with products one already owns, can motivate choice even for qualitatively inferior products (Evers, Inbar, and Zeelenberg 2014); consumers are also more likely to purchase items that belong to a series (Gao, Huang, and Simonson 2014) or complete a set (Barasz, John, Keenan, and Norton 2017; Carey 2008). However, little is known of how *non-aesthetic* characteristics, such as the numerosity of the set items, can affect consumers' purchase intentions.

We investigate how the composition of a set of products (i.e., whether items are equally or unequally numerous) affects consumers' willingness to purchase additional items. We contend that, irrespective of the overall numerosity of the set, and of one's preference and consumption rate, if set items are unequally represented, consumers will want to purchase additional elements that even out the inequality. This occurs because an unequal set composition induces people to perceive some items as either scarce or abundant relative to the others. In contrast, when items are equally represented in the set, consumers will be less likely to purchase additional items (or if they do so, they will more likely follow their personal preference). We test these predictions in three preregistered studies.

Study 1 ($N = 200$) tested whether set composition affects people's purchase intentions. Participants imagined owning a set of markers with either one per color (yellow, purple, green, orange, blue) or different numbers per color (i.e., 3 yellow, 2 purple, 2 green, 1 orange, 3 blue). The numerosity of items in the unequal set composition reflected people's preferences and consumption rate (pretested). For each color present in the set and for a novel color (pink) participants indicated *how many* additional markers they would buy (from 0 to 10). A 2 (set: unequal vs. equal, between) x 5 (marker color: yellow vs. purple vs. green vs. orange vs. blue, within) mixed ANOVA revealed a main effect of color ($M_{\text{yellow}} = .44$, $M_{\text{purple}} = .56$, $M_{\text{orange}} = .56$, $M_{\text{green}} = .81$, $M_{\text{pink}} = .53$, $F(4, 792) = 8.73$, $p < .001$), no effect of set ($p = .400$), and the predicted interaction ($F(4, 792) = 26.77$, $p < .001$). Planned contrasts showed that in the unequal set, people wanted to purchase more of the colors they liked and used the least, thus showing a willingness to neglect their own preference and consumption rate to correct the inequality. In the equal set, conversely, people wanted to purchase more of the colors they liked and used more (Table 1). A t-test revealed that set composition also affects purchases of totally novel items, leading people to desire more pink markers when the set was unequally ($M_{\text{unequal}} = .86$) than equally numerous ($M_{\text{equal}} = .52$, $t(198) = 2.81$, $p = .005$).

Study 2 ($N = 600$) tested whether the effect of set composition is due to perceptions of relative scarcity or abundance of the items featured in unequal sets. Holding item numerosity constant, we manipulated the distribution of the set members (tea bags) such that flavors were equally (3 oolong tea, 3 English breakfast tea, 3 green tea, 3 lemon black tea, 3 mango tea) or unequally represented (3 oolong tea, 2 English breakfast tea, 4 green tea, 2 lemon black tea, 4 mango tea). Participants then indicated their willingness to buy an additional green [vs. lemon black] tea (i.e., relatively abundant and scarce flavors, respectively; 1 = not at all; 7 = very much). A 2 (set: unequal vs. equal) x 2 (item numerosity: scarce vs. abundant) ANOVA revealed no effect of set (p = .187), a main effect of numerosity (M_{scarce} = 3.83, $M_{abundant}$ = 3.41, $F(1, 596) = 6.72$, p = .010), and a significant interaction ($F(1, 596) = 6.72$, p = .010). Willingness to purchase was significantly higher for lemon black tea (the relatively scarce flavor) than for green tea (the relatively abundant flavor) in the unequal set (M_{scarce} = 4.14, $M_{abundant}$ = 3.31, $t(596) = 3.68$, $p < .001$), but not in the equal set (p = .999).

Study 3 (N = 200) tested whether set composition also affects real choices. Participants imagined owning a set of white wines of equivalent value containing an unequal (i.e., 3 Reserva Viognier, 1 Sauvignon Blanc, 2 Chardonnay) or equal number per type (i.e., 2 Reserva Viognier, 2 Sauvignon Blanc, 2 Chardonnay). Participants were then asked to choose between two options: Three wines that would even out the inequality (i.e., 2 Sauvignon Blanc, 1 Chardonnay) or three wines that would instead keep the inequality (i.e., 1 Reserva Viognier, 1 Sauvignon Blanc, 1 Chardonnay). Upon data collection completion, one participant was randomly selected and gifted the set of wines including their chosen option. A logistic regression (B = 1.28, SE = .30, $Wald$ = 17.80, $p < .001$) revealed higher preference for "2 Sauvignon Blanc, 1 Chardonnay" in the unequal (57%) than in the equal set condition (27%), suggesting a desire to perfect the unequal numerosity of their possessions.

Our findings provide converging evidence that the numerosity of set items can induce consumers to make additional purchases. Indeed, irrespective of already possessing numerous items (study 1) and a variety of different ones (studies 2 and 3), people feel the need to restore equality across item types by purchasing additional items. This effect of set composition affects not only the purchase of items already featured in the set owned, but also of totally new ones. Thus, in addition to aesthetic features of product sets (e.g., Evers et al. 2014), *quantities* of products in a set can also affect purchase decisions, sometimes leading to suboptimal acquisitions.

References

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Evers, Ellen R. K., Yoel Inbar, and Marcel Zeelenberg (2014), "Set-Fit Effects in Choice," *Journal of Experimental Psychology: General,* 143 (2), 504–09.

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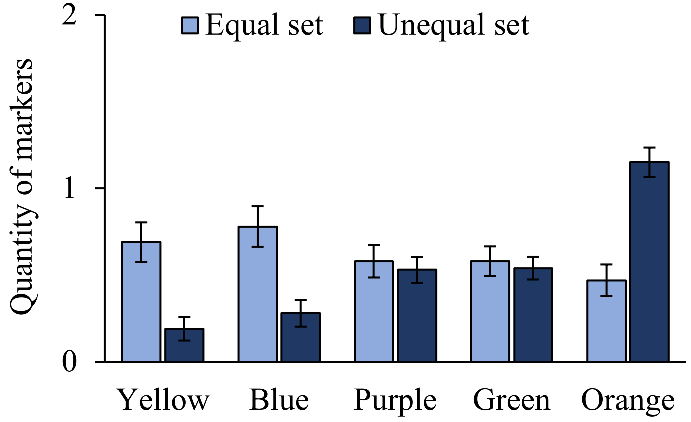
Table 1.

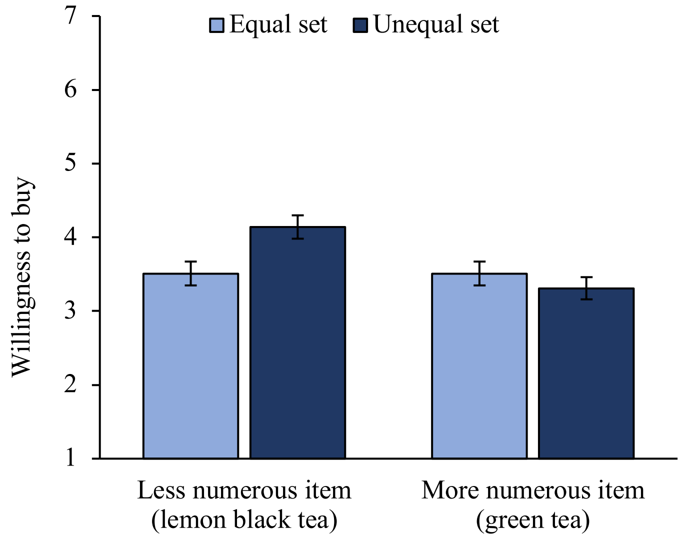
<table>
<tr><th>Study</th><th>Sets</th><th>Graphical representation of the results</th></tr>
<tr><td rowspan="2">1</td><td>Unequal:
</td><td rowspan="2">

Planned contrasts within the unequal set (dark blue bars):

Orange vs. Yellow: $M_{orange} = 1.15$, $M_{yellow} = .19$, $t(99) = 8.32$, $p < .001$
Purple vs. Yellow: $M_{purple} = .53$ $M_{yellow} = .19$, $t(99) = 3.98$, $p < .001$
Green vs. Yellow: $M_{green} = .53$, $M_{yellow} = .19$, t(99) = 4.47, $p < .001$
Orange vs. Blue: $M_{orange} = 1.15$, $M_{blue} = .28$, $t(99) = 7.33$, $p < .001$
Purple vs. Blue: $M_{purple} = .53$, $M_{blue} = .28$, $t(99) = 3.19$, $p = .002$
Green vs. Blue: $M_{green} = .53$, $M_{blue} = .28$, $t(99) = 3.55$, $p < .001$

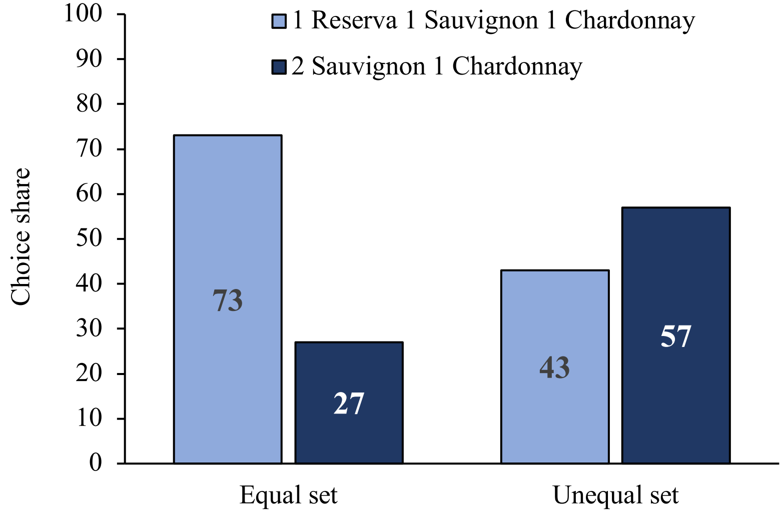
Planned contrasts within the equal set (light blue bars):

Orange vs. Yellow: $M_{orange} = .47$, $M_{yellow} = .69$, $t(99) = -2.04$, $p = .044$
Purple vs. Yellow: $M_{purple} = .58$, $M_{yellow} = .69$, $t(99) = .87$, $p = .386$
Green vs. Yellow: $M_{green} =.58$, $M_{yellow} = .69$, $t(99) = -1.05$, $p = .299$
Orange vs. Blue: $M_{orange} = .47$, $M_{blue} = .78$, $t(99) = -3.42$, $p < .001$
Purple vs. Blue: $M_{purple} = .58$ $M_{blue} =.78$, $t(99) = -2.20$, $p = .030$
Green vs. Blue: $M_{green} = .58$, $M_{blue} = .78$, $t(99) = -2.49$, $p = .015$
</td></tr>
<tr><td>Equal:
</td></tr>
</table>

2	**Unequal:**  **Equal:**  	
3	**Unequal:**  	**Choice options:** 

Equal:


Reserva Viognier
Sauvignon Blanc
Chardonnay


1 Reserva 1 Sauvignon 1 Chardonnay
2 Sauvignon 1 Chardonnay
Choice share
100
90
80
70
60
50
40
30
20
10
0
73
27
43
57
Equal set
Unequal set