



Food promotions and the cost of a healthy diet

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1 **Food promotions and the cost of a healthy diet**

2

3 Short title: Food promotions and healthy diets

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15

16 **Abstract**

17 With approximately two in three UK adults overweight or obese, one in five living in poverty,
18 and our emergence from the Covid-19 pandemic with implications for employment and income
19 status there is an urgent need to understand what it costs to eat healthily and the role that
20 promotions can play in helping householders manage food budgets. The literature suggests
21 that, in affluent countries, price promotions appear to increase consumer food purchases and
22 are applied more frequently to less healthy products than their healthy counterparts. This
23 review discusses the cost of a healthy diet, identifies the prevalence of promotions in both the
24 supermarket setting generally and a typical shopping basket specifically, and discusses the
25 barriers to affording a healthy diet. Given the current policy focus on the cost of living and
26 population health emphasising the need for food shopping to represent health and value for
27 money for better public health outcomes, this review contributes to the evidence base for
28 retailers' and policymakers' consideration as policy solutions are sought to reduce population
29 obesity levels, while ensuring the affordability and accessibility of nutritious food. It is
30 important, given the shift in consumer purchasing behaviour to online shopping as a result of
31 self-isolating or reticence to physically access stores in response to the Covid-19 pandemic,
32 that retail food promotions are available irrespective of the chosen mode of shopping (in-store
33 or online).

34

35 **Keywords**

36 Retail food promotions; healthy eating; food budget

37

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40 sectors.

41

42 **Conflict of interest**

43 None

44

45 **Introduction**

46 Recent data indicate that almost two thirds (63.3%) of the UK population is overweight or
47 obese and more than one in four (26%) is obese ⁽¹⁾. Almost one in five (18%; 11.7 million
48 people) was living in relative low income, meaning that these households had less than 60 per
49 cent of the UK average income before housing costs were deducted in 2019/20, with children
50 overrepresented in this category (23%) ⁽²⁾. The statistics have remained steady in recent years,
51 but this is an unacceptable outcome in the fifth richest world economy in 2021 ⁽³⁾. Coupled
52 with this is the population's emergence from the Covid-19 pandemic with implications for
53 employment and income status and levels of indebtedness. There is an urgent need to
54 understand what it costs to eat healthily and the role that retail food promotions can play in
55 helping householders manage food budgets.

56

57 Retail food promotions are considered to be “*temporary changes to the price of foods and*
58 *beverages, usually occurring in supermarkets and other food retail settings to increase*
59 *customer purchases*” ^(4,5). Price promotions can be classified as price-based discounts or multi-
60 buy discounts, for example, buy one get one free (BOGOF) deals.

61

62 Supermarkets are significant gatekeepers of our food supply and what we eat in the home due
63 to being a key source of fresh and unprocessed foods. To facilitate access to a choice of foods,
64 supermarkets also offer high levels of availability of processed foods that are typically energy-
65 dense and high in fat, sugar, and salt. A systematic literature review ⁽⁵⁾ suggests that, in affluent
66 countries, price promotions appear to increase consumer food and beverage purchases and are
67 applied more frequently to less healthy products than their healthy counterparts. This review

68 discusses the cost of a healthy diet, identifies the prevalence of promotions in both the
69 supermarket setting generally and a typical shopping basket specifically and discusses the
70 barriers to affording a healthy diet.

71

72 The literature recognises that a number of factors impact upon consumers' general food
73 choices. Sobal *et al.* ⁽⁶⁾ conceptualise food choice as operating at physical, biological,
74 psychological, and sociocultural levels. At the individual level, in recent years, the consumer
75 has been impacted by a range of macro-issues; namely, the recent recession in terms of rising
76 food, fuel and housing costs alongside decreasing wages and proposals for welfare reform ⁽⁷⁾.
77 A Department of the Environment, Food and Rural Affairs UK report (2010) ⁽⁸⁾ on people's
78 reactions to rising food prices showed people noting and responding quite dramatically even
79 before the introduction of austerity measures. Global food prices are rising and according to
80 the United Nations' Food Price Index, food prices in May 2021 were 4.8% higher than in April
81 - the biggest monthly rise since October 2010 - and 39.7% higher than May 2020 ⁽⁹⁾.
82 Furthermore, media reports present the inevitability of price rises as a result of the UK's exit
83 from the European Union.

84

85 Rising food costs have implications for public health, whereby consumers for whom food
86 becomes prohibitively expensive respond by reducing the nutritional quality and quantity of
87 food they eat ⁽¹⁰⁾. Such coping strategies may result in malnutrition, overweight and/or obesity.

88

89 At the population level, in Northern Ireland the direct and indirect costs of overweight and
90 obesity in 2009 were estimated to be £369,799,820 ⁽¹¹⁾; the equivalent of more than £1 million
91 per day highlighting that a great deal of attention in public spending is focused on public health.
92 In attempting to reduce this public health spending burden, a cross-departmental policy
93 imperative – *A Fitter Future for All: Framework for Preventing and Addressing Overweight
94 and Obesity in Northern Ireland 2012-2022* – has focused the attention of relevant stakeholders
95 to make a collective effort to combat the obesity epidemic. The Strategy recognises the
96 importance of continuing to encourage Northern Ireland food manufacturers to reformulate
97 their food and drink products to reduce saturated fat, sugar, salt, calorific value and provide
98 smaller portion sizes of energy-dense foods and beverages. Further, the Strategy recognises the
99 role of retail promotions in consumers' food and drink purchasing behaviour and has
100 committed to encouraging and enabling food retailers to '*consider reducing point of sale
101 placement of foods which are high in fat, salt, sugar and increasing exposure to promotion of*

102 *healthier foods*'⁽¹²⁾. Similarly, the Government in England recently confirmed its intention to
103 impose a UK-wide pre-9pm ban on TV adverts for food high in sugar, salt and fat and new
104 rules on online promotion. Additionally, the National Food Strategy (p.121)⁽¹³⁾ outlines
105 deliberative panel participants' *'overwhelming support for much stronger restrictions on the*
106 *advertising and promotion of junk food'* with some wanting *'tougher regulations for retailers*
107 *selling junk food'*.

108

109 Online grocery sales are particularly strong in the UK and online shopping for groceries was
110 the fastest growing sector of the supermarket industry between 2010 and 2018 in the UK⁽¹⁴⁾.
111 In the UK in 2018, 7% of supermarket shopping was conducted online, representing over £11
112 billion annually⁽¹⁴⁾. Kantar Worldpanel data (2020)⁽¹⁵⁾ indicate that the effects of the Covid-
113 19 pandemic are likely to further support this trend. This review discusses the cost of a healthy
114 diet, identifies the prevalence of promotions in both the supermarket setting generally and a
115 typical shopping basket specifically, and discusses the barriers to affording a healthy diet.

116

117

118 **Literature review**

119 The integral relationship between diet, health and income is well known. Food poverty
120 manifests itself as a short-term dilemma of putting food on the table alongside the long-term
121 effects of food poverty including the habitual consumption of poor nutritional quality foods to
122 the extent that lower income consumers are compromising food and nutritional quality to
123 satiate hunger. The food budget has long been appreciated as being the flexible item in the
124 household economy^(16, 17, 18, 19, 20). Consequently, food budgets are the most likely to be reduced
125 during financial crisis^(21, 22). It is a fundamental human right that food is available and
126 affordable, yet this moral is undermined when a basic healthy diet is out of reach of our most
127 vulnerable citizens.

128

129 *UK population's spend on food and non-alcoholic beverages*

130 The *Living Costs and Food Survey*^(23, 24) indicates how the average UK household spent £62.20
131 per week on food which equates to 11% of total expenditure (2018-20 figures). Lower income
132 households spent a higher proportion of their total expenditure on food and non-alcoholic
133 drinks: households with the lowest income spent 14% of their total expenditure on food and
134 non-alcoholic drinks, compared to their highest-income counterparts spending 8% of their total
135 expenditure on this category. Therefore, *"efforts to effectively and equitably improve*

136 *population nutrition, the price and affordability of healthy foods and diets, relative to less*
137 *healthy options, are increasingly being recognised as priority areas for policy intervention”*
138 ⁽²⁵⁾.

139

140 *Shopping basket research*

141 Shopping basket research is a longstanding methodology to investigate the affordability and
142 availability of food given its utility in collating a depth and breadth of information using a
143 formulaic structure to facilitate consistency of approach to data collection, and its relevance to
144 the research objectives of ascertaining the availability and affordability of foodstuffs. The
145 problems of devising a shopping basket and defining which foods should be included that are
146 both typical and acceptable to consumers has been discussed elsewhere ^(26, 27, 18, 28). Caraher
147 and Furey ⁽²⁹⁾ provides a useful overview of shopping basket studies.

148

149 Joint research by the FSA in NI, *safefood* (Republic of Ireland) and The Consumer Council in
150 Northern Ireland ⁽³⁰⁾ has developed standard weekly shopping baskets, by using the
151 methodological approach of the consensual budget standards process where essential food
152 items are specified by a majority opinion ⁽³¹⁾ achieving a social consensus of what everyone
153 ‘*should be able to afford*’ ⁽³²⁾(p.3). This means that the food items contained within reflect local
154 diets and realistic purchasing behaviours ^(33, 20).

155

156 However, when analysed against the average UK household spend on food and non-alcoholic
157 beverages, the cost of a healthy shopping basket appears prohibitively expensive. For example,
158 the above shopping basket research ⁽³⁰⁾ for four household types in Northern Ireland found that
159 low-income families in Northern Ireland have to spend up to 46% of their weekly income to
160 afford a healthy food basket. Specifically, a nutritionally adequate shopping basket of weekly
161 food for a two-parent, two-child household type (primary-school and secondary-school age) is
162 £162 (approximately £23.14 per day; 46% of household income if dependent on social
163 security). The total weekly cost of a minimum essential food basket for a one-parent, two-child
164 household type (pre-school and primary-school age) is £105 (approximately £15 per day; 34%
165 of household income if dependent on social security). The total weekly cost of an equivalent
166 food basket for a pensioner living alone household is £61; 32% of their household income, if
167 dependent on a state pension (approximately £8.71 per day). Finally, a two-parent, two-child
168 household (pre-school and primary-school age) dependent on state benefits would need to

169 spend 34% of their weekly income (£122, equivalent to £17.43 per day) to buy a minimum
170 essential food basket.

171

172 The phenomenon is not particular to the UK. Barosh *et al.* ⁽³⁴⁾ investigated the price differential
173 of a healthy and sustainable shopping basket in Australia. They found that the cost of the
174 healthy and sustainable basket was greater than the typical basket in all neighbourhoods,
175 irrespective of socioeconomic status. However, households in the lowest income quintile
176 would have to spend up to 48% of their weekly income to buy the healthy and sustainable
177 basket, while households in the highest income quintile would have to spend significantly less
178 (9%) of their weekly income.

179

180 Individuals on a low income therefore spend less money on food although they actually spend
181 a greater percentage of their income on food products ⁽³⁵⁾. MacMahon and Weld's study ⁽²⁰⁾
182 found the cost of minimum essential food baskets to be considerably greater for those in low-
183 income households with many individuals having to relinquish '*necessary*' food items.

184

185 *The role of promotions in managing the food budget*

186 Promotional activity is an important part of the food retail landscape for both consumers and
187 retailers. Kantar World Panel data found that up to 83% of purchases made on price promotion
188 are "*impulse purchases*", with only 17% "*planned purchases*" ⁽³⁶⁾. Consumers are 'value'
189 conscious and demonstrate savviness in their shopping behaviours having come to expect
190 reduced prices and are increasingly reliant on discounters ⁽²⁰⁾. Consumers can save money on
191 their average shop by seeking out promotional in-store food offers – an aspect which is
192 important given the relative cost of food in the current economic context ^(37, 38). The British
193 Retail Consortium (BRC) (2009) ⁽³⁹⁾ commissioned consumer research and concluded 'price'
194 to be the main barrier to eating a healthier diet for one-fifth (21%) of shoppers. Shoppers opined
195 that healthy foods are too expensive and unhealthy foods are promoted more than their healthy
196 counterparts.

197

198 For the purposes of this paper, retail food promotions will be defined as forms of promotion
199 which are primarily associated with a temporary reduction in price ⁽⁴⁰⁾. A recent systematic
200 review of the academic literature on retail food promotions has found some evidence that the
201 purchasing of price-promoted foods and/or beverages was either similar across socio-economic
202 groups or was greater for households with higher income - a finding that contrasts the literature

203 that suggests that those of a lower socioeconomic position are more price sensitive in terms of
204 their grocery purchasing ⁽⁵⁾.

205

206 *The healthfulness of food products on promotion*

207 An obesity epidemic and rising food prices have implications for health since dietary quality
208 and dietary costs are positively related. Food and drink innovation through food manufacturers’
209 product reformulation strategies has received significant attention in recent years ^(12, 13, 41) since
210 product reformulation can support current strategies that align price-based promotions with
211 prominent placement strategies to increase the availability, accessibility and affordability of
212 food and drink choices to consumers. Given the considerable effort to reformulate the food and
213 beverage retail product offering, it will be important that retailers utilise price-based
214 promotions and prominent placement tactics to make these food and drink innovations
215 available to the broadest number of consumers as possible. To do so will help to realise the
216 population benefits that are possible, with the potential to influence supply and demand, and
217 serve as a further catalyst for product reformulation.

218

219 The academic literature is clear that there is a dichotomy presented between the cost and
220 healthfulness of food. For example, Waterlander *et al.* (2010) ⁽⁴²⁾ cite several studies ^{(43, 44, 45,}
221 ⁴⁶⁾ confirming that lower-income consumers’ primary influencing factor when buying food is
222 price. These studies explain how more price-sensitive consumers appear less concerned about
223 the health aspects of food.

224

225 Retail food promotions have been attributed to support such consumers to afford food and drink
226 products they may not otherwise be minded to purchase. Milliron *et al.* ⁽⁴⁷⁾ identify that the
227 average shopper arrives at the store undecided about what to buy and is influenced by other
228 cues such as displays and packaging. Public Health England found that volume promotions
229 such as BOGOFs increase purchases of a product by an average of 15% ⁽⁴⁸⁾. Martin *et al.* ⁽³⁶⁾
230 found that the products most likely to be discounted through multi-buy promotions were
231 unhealthy foods and that this type of discount drives the greatest increase in sales compared
232 with temporary price reductions.

233

234 There is consensus among the literature that consumers’ responses to such sales promotions
235 tactics have been found to have a significant impact on short term sales, due to brand switching,

236 product switching, category switching, and temporal switching (stockpiling) ⁽⁴⁹⁾, but do not
237 shift dietary patterns ^(49, 50, 4).

238

239 However, Hawkes⁽⁴⁾ found that sales promotions of food contribute to increased consumption
240 of food - a finding more recently corroborated by Martin *et al.*⁽³⁶⁾ which concluded that price
241 promotions on unhealthy foods and beverages were ubiquitous and increased purchase volume
242 of these products. Hawkes ⁽⁴⁾ tested the expectation that highly impulsive people are less
243 resistant to sales promotions and found that sales promotion, weight status, and inhibitory
244 control appeared to have an effect on participants' purchases of snack food. Using sales data
245 as a proxy for dietary intake indicates that sales promotions have the potential to influence
246 consumer purchasing and may encourage consumers to buy and eat more ^(51, 52, 4, 53, 54). This
247 further reinforces the merits of the food industry's investment in innovation to achieve product
248 reformulation.

249

250 To develop this point further, Ni Mhurchu *et al.*, ⁽⁵³⁾ evaluated the effect of price discounts and
251 education (tailored to match participants' purchasing habits) on supermarket purchases. Sales
252 data were again used to assess nutrients purchased and identify any change in the number of
253 healthy food items purchased. The research concluded that while there was no difference
254 attributed to energy intake as a result of price discounts, nutrition education, or both;
255 participants who received price discounts on healthful foods bought significantly "more
256 healthful" foods at six and 12 months. This indicates that there is merit in coupling price
257 promotions to reformulated products to incentivise more healthful food purchasing and eating
258 behaviours. The research ^(55, 56) confirms that pricing strategies hold more influence when
259 focused on encouraging healthy eating than converse pricing strategies which focused on
260 discouraging unhealthy eating.

261

262 A 2019 systematic review of the literature ⁽⁵⁾ found that 14 of the 16 included studies concluded
263 that price promotions for unhealthy foods and beverages were either more frequent or had
264 greater influence on purchasing compared with price promotions for healthy items.

265

266 Price promotions are widely used by supermarkets to encourage purchase of targeted products
267 more quickly, more frequently, and/or in greater quantities ⁽⁵⁷⁾. Price promotions ⁽⁵⁸⁾ have been
268 shown to be extremely effective in altering consumer behaviour with a 200-1,000% uplift in
269 product sales ⁽⁵⁹⁾, albeit in the short-term ⁽⁴³⁾. This behaviour change is evident particularly in

270 shoppers with a lower socioeconomic status, females aged 30-40 years, those with no shopping
271 list and those who are more receptive to price promotions ^(60, 61).

272

273 This responsiveness to food promotions has also been used successfully as a tool to increase
274 the sales of healthier food ^(62, 55, 56, 63) suggesting the potential of pricing strategies to improve
275 diets at the population level. However, a Public Health England evidence review ⁽⁶⁴⁾ in relation
276 to actions to reduce sugar consumption found that food retail price promotions are more
277 widespread in Britain than anywhere else in Europe; that foods on promotion account for
278 around 40% of all expenditure on food and drinks consumed at home and that higher sugar
279 products are promoted more than other foods. The review also found that price promotions
280 serve to augment the amount of food and drink people buy by around one-fifth (22%) and are
281 purchases that people would not make if the price promotions did not exist.

282

283 Coker *et al.* ⁽⁶⁵⁾ concluded that high promotional shoppers (upper quartile) purchased a greater
284 quantity of unhealthy foods (higher in sugar and lower in fibre) and beverages and less fruits
285 and vegetables compared with low promotion shoppers (lower quartile). Additionally, the
286 prevalence of obesity for the main household shopper was found to be greater for high
287 promotional shoppers (36%) compared with low promotional shoppers (28%).

288

289 English research ⁽⁶⁶⁾ investigating whether food retailers' pricing techniques contribute to
290 overbuying and obesity found that retailers offer a wide range of special offers. Dobson ⁽⁶⁶⁾
291 concluded that there is a healthy choice of supermarket offers available and the onus was placed
292 firmly on consumers to shop carefully and avoid overbuying less healthy food (particularly for
293 very prominent offers, which can appear very tempting).

294

295 Prominence of retail food promotions receives much attention in the literature. In-store
296 marketing strategies that draw attention to healthier products may be effective and sustainable
297 for improving diet quality and health ⁽⁶⁷⁾. They found that "*straightforward placement*
298 *strategies can significantly enhance the sales of healthier items in several food and beverage*
299 *categories. Such strategies show promise for significant public health effects in communities*
300 *with the greatest risk of obesity*" for reasons of their scalability ⁽⁶⁷⁾. Kerr *et al.* ⁽⁶⁸⁾ agree and
301 concluded that areas of high promotional prominence have an apparent power and the
302 placement of healthy products in high-promotional-prominence areas is a more effective
303 approach than simply increasing the number of locations for healthy products. Similarly,

304 University of Cambridge, University of East Anglia and MRC Human Nutrition Research
305 recommended that prohibiting or limiting prominent placement strategies for less healthy
306 options, or augmenting their use for healthier products, holds the promising possibility of
307 encouraging healthier lifestyle choices ⁽⁶⁹⁾.

308

309 The literature is clear that there is merit in aligning price discounts and prominent promotional
310 efforts to increase the availability, accessibility and affordability of food and drink choices to
311 consumers. Waterlander *et al.*'s studies ^(42, 55, 56, 62), when considered together, conclude that
312 the experts and the consumers agree on the potential success of making healthy food and drinks
313 cheaper by either discounts or price cuts, as well as offering little extras with healthy foods.

314

315

316

317 **Discussion**

318 *Promotions and product (un)availability*

319 Promotional strategies with their associated potential to result in a significant uplift in
320 consumer purchasing necessitates there to be effective stock management. Product
321 unavailability is considered to be a frequently occurring and universal issue, and a major
322 concern for retailers and manufacturers alike ⁽⁷⁰⁾. Stockouts are considered to be a persistent
323 problem in retailing and something that the supply chain is eager to avoid because of the
324 widespread increase in retailers' and manufacturers' awareness of the sales, customer loyalty
325 and market share losses induced by poor on-shelf-availability ^(71, 72, 73, 74, 75, 76).

326

327 *Promotions and the perception of 'price' and 'quality'*

328 McDonald and Milne ⁽⁷⁷⁾ found that, per kilogramme of foods and beverages purchased,
329 groceries that were price promoted were 30% more expensive, after discounts, compared with
330 generic or low-cost brands that are typically not price promoted. McDonald and Milne suggest
331 that consumers are not necessarily purchasing the cheapest item available when they purchase
332 price-promoted products. This raises important questions regarding how consumers perceive
333 and define value and quality across different income groups ⁽⁵⁾.

334

335 The literature suggests that promotions were not readily available on retailers' own generic
336 brands, possibly because they are already perceived as being lower-priced ⁽²⁵⁾. However, given
337 the likely impact of the economic recovery from Covid-19 and the UK exit from the EU on

338 household budgets, it will be prudent for retailers to continue to monitor the availability,
339 purchasing and promotion of generic brands into the future ⁽²⁵⁾, particularly given the research
340 finding from a Northern Ireland study ⁽⁷⁸⁾ that generic brands were often found to be superior
341 to market brands with regards to overall healthfulness when measured using a score aligned to
342 the Food Standards Agency's Front of Pack nutrient labelling system.

343

344 Importantly, the Bennett *et al.* ⁽⁵⁾ systematic review did not identify any studies that examined
345 how shoppers may swap between stores in response to discounts and the impact this may have
346 on their overall purchasing pattern. This is an important research topic for the future because it
347 is well established that the '*discipline of poverty*' ^(79, 80) dictates that people shop around to
348 secure the best deal and the best prices may be achieved across different stores and not by
349 shopping from a single retailer ⁽²⁹⁾. The fierce competition between the supermarket chains is
350 one thing that could insulate British households from food price inflation. At the moment, food
351 prices are being pulled lower by the return of promotional deals which were dropped as food
352 stores concentrated on keeping shelves full at the height of the health crisis ⁽⁸²⁾.

353

354 *Parity of esteem between in-store and online promotions*

355 Bhatnagar *et al.* ⁽⁸¹⁾ found in a general sample, 85 % (95 % CI 80, 90 %) of products found in
356 physical stores could be matched with an online product, and prices were similar between
357 online and physical stores making the online exercise a good proxy for product availability and
358 prices. Therefore, while Bhatnagar *et al.* ⁽⁸¹⁾ found that online tools were good proxies for
359 product availability and price, there was only fair agreement in the general sample for the
360 presence of price promotions (Cohen's kappa = 0.40 (95 % CI 0.26, 0.55)). However, they
361 found that there were more price promotions present in physical supermarkets (32% of
362 products) compared with online supermarkets (24% of products) with potential for impacting
363 on health inequalities for those reliant on online sources alone when grocery shopping in
364 physical stores may represent an easier means to achieve better value for money. For this
365 reason, and for reasons of parity of approach between physical stores and online shopping, the
366 literature calls for further research into online promotions to better understand patterns in
367 promotions, the impact on purchasing behaviour and the implications for policy. This is an area
368 requiring additional investigation particularly in the UK context given the recent moves to ban
369 food retail promotions on less healthy foods in support of the Childhood Obesity Plan and
370 National Food Strategy.

371

372 **Conclusion**

373 Given the current policy focus on the cost of living and population health emphasising the need
374 for food shopping to represent health and value for money for better public health outcomes
375 and reduced morbidity, this review contributes to the evidence base for retailers’ and
376 policymakers’ consideration as policy solutions are sought to reduce population obesity levels,
377 while ensuring the affordability and accessibility of nutritious food. It makes some observations
378 and recommendations that could helpfully inform retailers’ promotional strategies in respect
379 of the breadth of products to which promotional offers apply including manufacturers’ and
380 retailers’ own brands. It is important, given the shift in consumer purchasing behaviour to
381 online shopping as a result of reticence to go outside during the Covid-19 pandemic, that retail
382 food promotions are available irrespective of the chosen mode of shopping (in-store or online).
383 It is incumbent upon consumers, within their capabilities and interest, to shop around for the
384 best deal. Finally, it would be beneficial if retailers kept apprised of healthy food basket
385 research as they strive to ensure a balance of promotional activity against such popularly
386 purchased products and produce.

387

388

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