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# Effectively Communicating New Product Benefits to Consumers: The Use of Analogy versus Literal Similarity

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## Abstract

The main point this study wants to make is that the use of analogies in advertising for really new products is a more effective means of communicating a new product's distinctive benefits to consumers than is the use of literal similarity comparisons. This hypothesis was tested by means of an experiment with a 3 (comparison type: explicit analogy, implicit analogy, literal similarity) x 2 (product: Auto Mower, Smart Pen) design. The results showed a significant effect of the use of implicit analogy in advertising on consumer's benefit comprehension for one of the two really new products. The use of analogies in the ads did not increase consumer preference to a greater degree than did the use of literal similarities. We did, however, find a positive effect of benefit comprehension on product preference. We discuss these findings and outline directions for future research.

## Keywords

analogy, really new products, consumer learning, marketing communications

## Disciplines

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### Effectively Communicating New Product Benefits to Consumers: The Use of Analogy versus Literal Similarity

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#### ABSTRACT

The main point this study wants to make is that the use of analogies in advertising for really new products is a more effective means of communicating a new product's distinctive benefits to consumers than is the use of literal similarity comparisons. This hypothesis was tested by means of an experiment with a 3 (comparison type: explicit analogy, implicit analogy, literal similarity) x 2 (product: Auto Mower, Smart Pen) design. The results showed a significant effect of the use of implicit analogy in advertising on consumer's benefit comprehension for one of the two really new products. The use of analogies in the ads did not increase consumer preference to a greater degree than did the use of literal similarities. We did, however, find a positive effect of benefit comprehension on product preference. We discuss these findings and outline directions for future research.

#### **INTRODUCTION**

New products play an essential role in providing increased sales, profits, and competitive strength for most organisations. A growing percentage of these new product introductions represent really new products; products that create entirely new categories (Gregan-Paxton and Roedder John 1997; Gregan-Paxton, Hibbard, Brunel, and Azar 2002), such as the personal digital assistant (PDA). A particular characteristic of really new products is that their distinctive benefits generally lie in technologically innovative features that are hard, or even impossible, to observe from the outside. This constitutes a serious problem to marketers, since the degree to which consumers perceive distinctive advantages in new products crucially affects their market acceptance (Cooper and Kleinschmidt 1995; Hultink and Robben 1999). Roehm and Sternthal acknowledge this problem and note that the challenge in marketing new products is "to help consumers identify and appreciate their product benefits, particularly those that might not be apparent from an inspection of a product's surface attributes" (2001, p. 257). As the strategic and financial importance of launching new products increases (Moreau, Lehmann, and Markman 2001a), it is necessary to investigate communication strategies during the introduction of really new products in order to facilitate consumer learning of their key benefits.

In general, marketers tend to turn to advertising to inform consumers about a new product. Advertising is relatively cheap, the information that is communicated to consumers is under control, and it can reach a mass audience (Hoch and Deighton 1989). Nevertheless, advertising is not the most effective tool for consumer learning of really new products, at least not when it is used in its traditional way of communicating product attributes and benefits. Ads regarding complex products, such as really new products, typically need to contain a high amount of attribute information because there is more content-related information to impart about a new PC, for instance, than about a bottle of perfume or soft drink (Abernethy and Franke 1996; Mortimer 2000). As consumers find it difficult to understand the link between product attributes and the benefits they provide (Hoeffler 2003), the use of analogies in advertising has been proposed as a promising means to enhance consumer learning of new product benefits.

Analogies are believed to be effective learning aids as they involve the transfer of existing knowledge to the new product and thus facilitate learning, increase comprehension, and direct consumers' attention to key benefits (Gregan-Paxton and Roedder John 1997). Recent research in marketing and consumer behavior has suggested that analogies may be useful to enhance consumer learning of really new products (Gregan-Paxton et al. 2002; Moreau et al. 2001a; Roehm and Sternthal 2001). Gregan-Paxton et al. even conclude that "the analogical learning literature is uniquely suited to the study of products that require consumers to create entirely new knowledge structures" (2002, p. 544). In spite of the indisputable value of previous research, two observations can be made that warrant further investigation into the effectiveness of the use of analogies for consumer learning of new products. First, previous studies have employed literal similarity matches instead of analogies (see Gregan-Paxton et al. 2002 for a notable exception). Roehm and Sternthal (2001), for example, compared nutritional management software (target) with financial management software (base) and a PDA (target) with a mobile phone (base). The two bases are closely related to the target domain and share both surface attributes and structural relations with it, qualifying them as literal similarities rather than analogies (the difference between analogy and literal similarity is explained later in this paper). We will argue that analogies serve the purpose of facilitating consumer learning of really new products better than literal similarity matches as the latter are less effective in explaining the distinctive competitive benefits of really new products. A second observation that warrants further investigation is that none of the reported studies have investigated benefit comprehension as the dependent variable. Gregan-Paxton et al. (2002) showed that the use of analogies directs consumers' attention to shared structural relations between target and base, but the question remains whether such a focus on corresponding relations also enhances consumers' comprehension of the key benefits of a really new product. It is the aim of the present study to answer this question by examining whether the use of analogies in ads for really new products leads to a better understanding of their key benefits than the use of literal similarity matches.

#### **CONSUMER LEARNING BY ANALOGY**

Analogical learning takes advantage of similarities between a familiar domain (the base) and a new domain (the target), using the relational commonalities (i.e., an interconnected system of properties or components) as a basis for generating inferences from the base to the target to enhance comprehension of the latter. Applying this framework to really new products, prior knowledge of a familiar, well-known base (e.g., secretary) may enable consumers to learn about and develop a representation of a new product (e.g., PDA).

Learning by analogy occurs through a series of stages: access, mapping, and transfer (Gentner 1989; Keane, Ledgeway, and Duff 1994). In the access stage, a relevant base becomes active in a person's memory and serves as a source of information about the target. Access is likely to occur spontaneously when the target shares a number of surface similarities (i.e., visible attributes) with the base (Gentner, Ratterman, and Forbus 1993). In a marketing

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communications setting, the base is usually prompted from an external source, such as a print advertisement (Gregan-Paxton et al. 2002; Moreau et al. 2001a; Moreau, Markman, and Lehmann 2001b). Once the base has been activated, its content and structure are compared with the target in the mapping stage. Unlike access, mapping is characterized by a preference for relation-based rather than attribute-based comparisons between base and target (Clement and Gentner 1991; Gentner et al. 1993). Finally, in the transfer stage, the base and target are aligned based on the shared relations between the two. It is in this stage that learning occurs, when knowledge is moved from the base to the target along the mappings that have been made during the mapping stage.

#### ANALOGY VERSUS LITERAL SIMILARITY

The consumer and psychology literature distinguishes analogies from literal similarity comparisons (Gentner 1989; Gregan-Paxton and Roedder John 1997; Roehm and Sternthal 2001; Vosniadou 1989). This distinction is based on the conceptual distance between the base and the target of the comparison. An analogy refers to the transfer of knowledge between a base and target that belong to disparate conceptual domains, but which share a similar explanatory structure. An example of an analogy is the previously mentioned comparison between a secretary (base) and a PDA (target). Due to the conceptual difference between the base and target domains, analogies allow only relations to be mapped from base to target and not surface properties. In our example, a PDA and a secretary do not share any surface properties (i.e., there is no transfer of attributes), but transfer of relations does take place (e.g., like a secretary, a PDA manages appointments, address books, and documents). Unlike analogies, literal similarities pertain to the transfer of knowledge between a base and a target from similar domains. An example of a literal similarity comparison is a comparison between a PDA (target) and a base from a highly related domain, namely a mobile phone. Because of the conceptual closeness of the base and the target domain, transfer between the two may take place of both structural relations (e.g., the way wireless communication takes place) and surface attributes (e.g., display, keyboard, buttons, and other elements both products are made up of).

#### Effect on Comprehension

The disadvantage of using literal similarity comparisons instead of analogies in advertising for really new products is that they are less capable of conveying the key benefits of such products to consumers, which is precisely the purpose of using a comparison at all. A base from a closely related domain, such as a mobile phone in the case of a PDA, may share attributes and relations with the target, but it is less able to convey new information about the target (i.e., managing office related tasks) because it is exactly this new information that distinguishes the target from the base. Put otherwise, how should consumers learn the distinguishing benefits of a PDA by comparing it with a mobile phone if the mobile phone does not possess these benefits? More generally, a base from a domain that is similar to that of the target is never optimally suited to teach consumers the distinguishing benefits of the target since the base lacks exactly those distinguishing qualities. It has been argued that the slow adoption rate of mobile phones was due to the comparison drawn with traditional phones (Fusco 1994), which made it difficult for consumers to perceive the distinctive benefit (i.e., mobility) of the mobile phone.

Apart from their relative inability to communicate distinguishing benefits, literal similarity comparisons entail the risk that they stimulate consumers to make false inferences about the target. To illustrate, comparing a PDA to a mobile phone, consumers may incorrectly conclude from their knowledge about mobile phones that one can receive and make phone calls with the PDA.

The arguments presented above have lead us to conclude that the use of literal similarity in advertising is a relatively ineffective means of explaining the distinctive benefits of really new products to consumers. Analogies, on the other hand, are believed to be better suited to this end due to the conceptual remoteness of the base and the target domain. Whereas two similar domains imply the disadvantages that we have explained above (i.e., inability to communicate distinguishing benefits and risk of false inferences), disparate domains do not. Confronted with a base and a target that share particular structural relations but no surface attributes, consumers will focus on the common relations and disregard the non-corresponding attributes. According to Gregan-Paxton and Roeder John (1997), focusing on common relations (particularly between a base and a target from disparate domains) will enhance comprehension of (the distinctive benefits of) a really new product because structural relations are thought to be more informative about what benefits a product offers than are surface properties (Gregan-Paxton and Roeder John 1997). Of course, comprehension will only increase if the disparate base of the analogy is appropriately selected so that the common relations truly pertain to the distinctive benefits of the target, that is, the analogy has to be 'sound' (Gentner et al. 1993). Empirical support for these assertions comes from Gregan-Paxton et al. (2002) who demonstrated that consumers presented with a product description of a PDA including an analogy (i.e., a secretary) focused on corresponding relationships between target and base and disregarded dissimilarity in surface properties. Gregan-Paxton and her colleagues did not investigate, however, whether the focus on structural relationships and the disregarding of surface properties actually enhanced comprehension of the new product. Nevertheless, based on findings from other researchers they argue that the use of analogies increases the rate at which consumer expertise develops by providing "a structure capable of organizing the constellation of features comprising an unfamiliar domain" (2002, p. 545). We second this and hypothesize that:

*H1*: Consumers will better comprehend the distinctive benefits of a really new product that is advertised through an analogy than through a literal similarity.

#### Effect on Preference

Consumers typically have to learn about new benefits in order to appreciate really new products (Lehmann 1994; Urban, Weinberg, and Hauser 1996). Since benefit comprehension does not guarantee a positive evaluation of these benefits, marketers strive for communication goals that go beyond understanding. They aim to create a positively exaggerated impression of the key benefits in order to make their new product more appealing to consumers. Having said this, it can be expected that benefit comprehension will lead to a more positive evaluation of the new product. Marketers will make sure only to emphasize product benefits that consumers are likely to appreciate. Since an analogy is believed to attract attention to the key benefits of a really new product and given the assumption that consumers appreciate these key benefits, a positive relation is expected between the use of analogies versus literal similarities in ads for really new products and consumers' preference for the new product:

*H2*: Consumers will evaluate a really new product that is advertised through an analogy more positively than a really new product that is advertised through a literal similarity.

#### METHODOLOGY

#### Participants

The research was conducted among 99 members of a consumer panel consisting of a cross section of inhabitants of the community of Delft in the Netherlands. Participants ranged in age from 19 to 74 years (M=48.3) and approximately 52% of them were male. Only participants who possessed a home computer, private access to the Internet, new products such as an MP3, DVD, or digital (video) camera, and a house with a garden were selected, since they were likely to be innovative and interested in the two really new products examined in the study. Participation took 30 minutes and was rewarded with a small financial compensation equivalent to US\$ 6.

#### **Design and Stimuli**

The hypotheses were tested by means of an experiment with a 3 (comparison type: explicit analogy, implicit analogy, literal similarity) x 2 (product: Auto Mower, Smart Pen) design. As a safeguard in the case that the analogy manipulation would not be strong enough in the implicit analogy condition, we decided to include an explicit analogy condition in the experimental design. In this condition, the analogy was manipulated more strongly by explicitly mentioning each correspondence between the base and the target in the body text of the ad in addition to mentioning the base in the sub headline and the first sentence of the body text (as was done in the implicit analogy condition). Each participant evaluated two different types of comparison, one for each product. Due to time constraints not every respondent was able to view a second ad and fill out the corresponding questionnaire, resulting in a total number of cases of 187. Both product and comparison type were presented in balanced orders to reduce carryover effects (Elmes, Kantowitz, and Roediger 1992).

Two really new products were chosen to enhance generalizability. The Auto Mower (i.e., an autonomous lawn mower) and the Smart Pen (i.e., a device that biometrically identifies its user) were selected on the basis of two criteria. First, participants had to be unfamiliar with the products, since a representation of either product had to be absent or at least limited. A pre-test (n=124) established that both really new products were unfamiliar to the participants ( $M_{Auto\,Mower}$ =1.90,  $M_{SmartPen}$ =1.92 on a seven-point scale). Second, for both products two different knowledge domains had to be available, one that could serve as the base for the analogy (Auto Mower: robot, Smart Pen: fingerprint), and one that could serve as the base for the literal similarity comparison (Auto Mower: lawn mower; Smart Pen: ballpoint). These bases were generated and selected through pre-testing.

Six print ads were developed, one for each experimental condition (see appendix for examples). Print was selected as the experimental medium, because it is the primary medium in which consumer durables are advertised and it is consistent with previous research. The ads consisted of a body of text, a headline and two pictures: a picture of the really new product and of the base. The main purpose of the ads was to stress the comparison between the target product and the base domain. Centered at the top of each ad in large typeface was the product name. The comparison type was manipulated in the sub headline, "The Smart Pen is like a ballpoint [fingerprint]!" of which the base domain was printed in red. Below this sub headline a picture of the target product was shown. To strengthen the manipulation, the body opened with the sentence: "The Smart Pen works like a ballpoint [fingerprint]". Next to this text a picture of the base domain (ballpoint or fingerprint) was shown. For the explicit analogy condition the ad version addressed each correspondence between the base and the target in the body text of the ad in addition to mentioning the base in the sub headline and the first sentence of the body text. Information about three other product attributes was included in the lower right corner of each ad to increase the ad's realism. A pre-test (n=124) revealed no significant differences (p>.50) between the ads in terms of participants' (a) difficulty of comprehending the ad, and (b) informativeness of the ad.

#### Procedure

The experiment was administered individually. Participants examined the stimulus print ad for 60 seconds after which they filled out the questionnaire containing the dependent variables. The experiment was then interrupted for approximately 10 minutes by a second, unrelated experiment, which served as a distracter task between the exposure to the first and the second ad. The procedure for the second ad was equal to that for the first ad after which participants were debriefed and received their compensation.

#### **Dependent Measures**

All items were measured on seven-point rating scales.

*Benefit Comprehension*. Participants' understanding of the benefits of the new product was captured by a three-item scale (Cronbach ?=0.91). For the Smart Pen, for example, participants were asked: "To what extent does the comparison between the Smart Pen and the [ballpoint/fingerprint] help you to clarify the new features of the advertised product" (comparison is: not helpful/helpful, not useful/useful, confusing/illuminating).

*Product Preference*. Based on Moreau et al. (2001a) consumers' product preference was assessed by means of a five-item scale (Cronbach  $\alpha$ =0.84) that captured participants' product attitude (good/bad, favorable/unfavorable, like/dislike), behavioral intention: "This is a product I would like to try" (completely disagree/ completely agree), and need for information: "I would like to have more information about this product" (completely disagree/completely agree).

#### RESULTS

An ANOVA with benefit comprehension as the dependent variable yielded significant main effects for product ( $F_{1,181}$ =35.98, p<.01) and type of comparison ( $F_{2,181}$ =4.16, p<.05). The Auto Mower (M=5.62) generated a higher benefit comprehension than the Smart Pen (M= 4.26). As predicted in the first hypothesis, ads containing an analogy increased benefit comprehension of a really new product more than ads containing a literal similarity ( $M_{implicit}$  analogy=5.25,  $M_{explicit}$  analogy=5.05,  $M_{literal}$  similarity=4.49). A Tukey post-hoc comparison test revealed that only the difference between the implicit analogy condition and the literal similarity vs. implicit analogy=.76, p<.05; mean difference<sub>literal</sub> similarity vs. explicit analogy=.21, p=.74). The insignificant difference between the implicit analogy conditions shows that our concern that the analogy manipulation in the implicit analogy condition might not be strong enough proved groundless.

The main effect of comparison type was qualified by a significant two-way interaction between product and type of comparison. The means indicate that the positive effect of analogy on benefit comprehension occurred for the Smart Pen, ( $M_{implicit}$  analogy=4.92,  $M_{explicit}$  analogy=4.53,  $M_{literal}$  similarity=3.27), but not of the Auto Mower ( $M_{implicit}$  analogy=5.60,  $M_{explicit}$  analogy=5.58,  $M_{literal}$  similarity=5.68;  $F_{2,181}$ =5.14, p<.01).

An ANOVA with product preference as the dependent variable failed to show any significant effects. All three comparison types generated equally positive preferences for both new products

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 $(M_{\text{implicit analogy}}=4.61, M_{\text{explicit analogy}}=4.80, \text{ and } M_{\text{literal similar-ity}}=4.55)$ . To investigate the possibility that the effect of comparison type on product preference was mediated by benefit comprehension, we repeated the analysis with benefit comprehension as a covariate. The analysis revealed a significant main effect of the covariate only  $(F_{1,179}=21.56, p<.01)$ . Irrespective of experimental condition, consumers that comprehended the new product' benefits better, also showed greater appreciation of these products.

#### DISCUSSION

The main point this study wants to make is that the use of analogies in advertising for really new products is a more effective means of communicating a new product's distinctive benefits to consumers than is the use of literal similarity comparisons. The primary reason for the greater effectiveness of an analogy lies in the fact that the base domain in this type of comparison is fundamentally different from the target domain. The conceptual remoteness between the domains in an analogy entails two consequences for consumer comprehension of the benefits of a really new product that do not occur in the case of a literal similarity comparison. A first consequence is that consumers who process an analogy focus on the transfer of structural relations between the base and the target and are not distracted by surface properties, because relations are all that the base and target share. Structural relations carry more information about the benefits a new product offers than do surface properties, hence the greater explanatory power of analogies versus literal similarities. Second, consumers are less likely to transfer incorrect knowledge about relations and properties from the base to the target, when the base and the target are from conceptually remote domains, as is the case for analogies, than when they are from conceptually similar domains, as is the case for literal similarities. Put simply: when the base and the target do not look alike, consumers will be less likely to wrongly infer that they are alike.

Previous researchers investigated the effects of the use of analogies and literal similarities on information processing and comprehension. Gregan-Paxton et al. (2002) showed that ads containing an analogy lead recipients to focus their information processing activities to the mapping of structural relations and to ignore the mapping of features between the base and the target. Recipients of ads not containing an analogy, in contrast, showed a greater preference for the mapping of surface properties. The mapping of structural relations occurred much less frequently. What the study of Gregan-Paxton and her colleagues does not show, however, is that the use of analogies actually leads to enhanced comprehension of the new product and its benefits. The authors assume such a relation to exist, but they do not test it empirically. The relation between the use of a comparison in advertising and consumer comprehension has been tested by Roehm and Sternthal (2001). They demonstrate that under conditions of sufficient base knowledge and processing resources, ads containing analogies were better comprehended and more persuasive than ads containing literal similarity comparisons. The authors also showed that ads containing analogies, as opposed to ads containing literal similarities, lead to more intensive mapping of relations relative to surface properties. It is not exactly clear how these results should be interpreted, though, since it is not certain whether the 'analogies' that Roehm and Sternthal used in their study qualify as analogies (disparate domains) or literal similarities (closely-related domains). To illustrate, in the first experiment the target and base for the analogy condition were a new nutritional management software package and an existing financial management software package, and for the literal similarity condition they were a new financial management software package and an existing financial management software package. In the second experiment, the target was a PDA, and the bases were a mobile telephone (analogy) versus a laptop computer (literal similarity).

It is not our purpose to criticize the Roehm and Sternthal study; rather we merely wish to illustrate how delicate and multi-interpretable the distinction between analogies and literal similarities is. In our study we attempted to play it safe by selecting clearly disparate bases for our targets in the analogy condition and testing them subsequently. This resulted in the bases for both comparison types that were described earlier. The results of our experiment showed that the use of the fingerprint analogy in the ad for the Smart Pen lead to a significantly higher level of benefit comprehension than the use of the ballpoint literal similarity comparison. This effect was not found for the Auto Mower. Benefit comprehension was equally high for the analogy and literal similarity condition. We can only speculate as to why a positive effect of analogy on benefit comprehension was found for the Smart Pen and not for the Auto Mower. Potential explanations that the Smart Pen was more novel or more complex than the Auto Mower should be rejected on the basis of the pre-tests that showed no significant differences regarding these two aspects. A more likely explanation could be that benefit comprehension was higher a priori for the Auto Mower than for the Smart Pen. The use of an analogy did not further increase the benefit comprehension for the Auto Mower, because benefit comprehension was already high. The mean benefit comprehension score of 5.6 on a seven-point scale for the Auto Mower seems to support this explanation. In hindsight, it would have been better if we had collected pre- and post-exposure measures of benefit comprehension. This is certainly an option that should be explored for future research, but many practical problems spring to mind, the most obvious of which is how one should measure comprehension of the benefits of a new product that somebody has never seen before without showing the person (an ad of) the product. Offering information about the new product in advance that will enable participants to rate their level of comprehension will at the same time affect the consumer learning process that is the object of investigation.

The use of analogies in the ads for the Smart Pen and Auto Mower did not increase consumer preference to a greater degree than did the use of literal similarities. We did, however, find a positive effect of benefit comprehension on product preference, which suggests that a positive relation between the two exists. Earlier, we argued that comprehension of a new product's benefits does not automatically lead to a higher appreciation of the new product. Clearly, consumers must appreciate the benefits in order to appreciate the product. From a marketing perspective, thus, an analogy should not solely explain the key benefits to consumers, but it should dramatize or sell the benefit(s) to them as well. Our results show that the analogies used in this study were not successful in this respect. Future research will need to focus on generating analogies that on the one hand explain the key benefits of a really new product to consumers and on the other hand create a positive exaggerated impression of these key benefits. The RAM-Conveyor theory (Rossiter and Percy, 1997) offers a methodology that may help marketers to do exactly this: to select appropriate conveyors (i.e., analogies) that explain the advertised new product's benefits while simultaneously amplifying them in order to install a positive impression of the product in consumers' minds.

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#### APPENDIX Stimulus Material<sup>1</sup>

IMPLICIT ANALOGY AD VERSION LITERAL SIMILARITY AD VERSION VERSION Smartpen Smartpen The Smart Pen like a The Smart Pen works like a ballpoint The Smart Pen like a The Smart Pen works like a fingerprint The Smart Pen identifies the fingerprint ! The Smart Pen identifies the ballpoint ! user when outting a user when putting a signature on regular paper. signature on regular paper. Built-in sensors Built-in sensors register the dynamics of the register the dynamics of the act of writing, act of writing, such as the speed and such as the speed and acceleration of a acceleration of a signature. The pressure used signature, the pressure used when writing, when writing, and the angle at which the and the angle at which the Smart Pen is held. Smart Pen is held. Based on the dynamics of Based on the dynamics of the act of writing a the act of writing a profile of the user is set up profile of the user is set up and stored in a and stored in a chip. During the writing chip, During the writing process encryption process encryption technology measures, technology measures, codes, and verifies the codes, and verifies the signature of the user signature of the user with the stored writing with the stored writing characteristics. In characteristics. In consequence, the Smart consequence, the Smart Pen is able to Pen is able to authenticate the user authenticate the user irrefutably. irrefutably. NEW! NEW! · Color: red, blue, green, and transparent · Color; red, blue, green, and transparent · Materials: plastic or stainless steel · Materials: plastic or stainless steel · Power supply: cable or batteries · Power supply: cable or batteries

The presented ad texts are English translations of the original ad texts.

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