

Peptides, proteins and peeling active ingredients: exploring 'scientific' language in English and French cosmetics advertising

Name: Dr Helen Ringrow

Affiliation: University of Portsmouth, United Kingdom

Abstract in English: Cosmetics brands are increasingly employing a 'scientific' or, perhaps more accurately, a pseudo-scientific discourse in their advertisements to help authenticate a particular product in the global beauty marketplace. These advertisements often create and reinforce a connection between beauty and science. This article explores this current phenomenon through critical linguistic analysis of a corpus of Metropolitan French and British English beauty advertisements from May to September 2011. The article also draws on broader issues relating to the use of pseudo-scientific discourse in cosmetics advertising, including questions of (mis)representation of science, consumer response, gender, and advertising regulation in both French and English contexts.

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1.1 Cosmetics, science and pseudo-science

The discourse of current beauty advertising can be characterised by the construction of 'consumer femininity' or 'commodified femininity' (Talbot 2010; Benwell and Stokoe 2006) in which femininity is a bodily characteristic which requires products for its upkeep and continual improved appearance (Gill 2007: 91). In much contemporary advertising, consumers are bombarded with various 'scientific' claims, lexis and imagery on product marketing materials for beauty products. Perhaps in an attempt to differentiate their product in an ever-growing market, brands are turning to science to help authenticate various cosmetics. Contemporary Western advertising copy is often saturated with references to DNA, cell coding, systems and formulas, in addition to

scientific-sounding ingredients such as hyaluronic acid, bioactive glycoproteins, and biotechnological peptides. Jeffries (2007) notes that pseudo-scientific discourse is a feature used in UK female-targeted magazines in an attempt to sound authoritative. With regard to cosmetics advertising in particular, Coupland (2003; 2007) has addressed 'scientific' language in the context of anti-ageing skincare advertising, arguing that from a marketer's perspective, authenticity may be increased. This article aims to build on these observations by conducting a large-scale critical linguistic analysis of pseudo-scientific discourse in contemporary French and English cosmetics advertising discourse.

If we consider definitions of 'scientific' and 'pseudo-scientific', the Oxford Dictionaries online (<http://www.oxforddictionaries.com>) define 'scientific' as

1. based on or characterised by the methods and principles of science: relating to or used in science; scientific instruments
2. (*informal*) systematic; methodical.

'Pseudo-scientific' is identified as the adjectival form of 'pseudo-science' which is defined as:

A collection of beliefs or practices mistakenly regarded as being based on scientific method.

These two terms were searched for as keywords in the magazine section of the Corpus of Contemporary American English (COCA) in order to view some real-life examples in context. The search was confined to the sub-category 'Magazines' and the first 30-50 items were informally examined by the author. 'Scientific' examples provided evidence of definitions 1 and 2, but notably 2. 'Scientific' often appeared before nouns such as 'research', 'data' and 'literature', as can be viewed in the sample concordance lines reproduced below:

1627	2004	MAG	Redbook	A	B	C	, " Clearly, people were seeing results, but we didn't have a scientific explanation as to why this wrinkle-reduction was occurring. However, based on the incredibly
1628	2004	MAG	TotalHealth	A	B	C	prostate may be most vulnerable to Se supplementation. These newer findings add numerous other scientific reports on the immune support contributions of selenium. Next come the nutrient antioxidants.
1629	2004	MAG	TotalHealth	A	B	C	the collagen molecules and in that way stabilize them against free radical attack. The scientific literature reveals pycnogenol to be a particularly good protectant for the fragile walls of capillaries
1630	2004	MAG	TotalHealth	A	B	C	to reflect a growing trend among members of the medical profession. They promote new scientific developments that can supposedly liberate women from their age-long debilitation, menstruation. Leading the
1631	2004	MAG	TotalHealth	A	B	C	than 160 periods in their lifetime. (The mind boggles at how rigorous the scientific method arrived at such conclusions.) On the other hand, modern women,
1632	2004	MAG	TotalHealth	A	B	C	, evidently disease free after the enzyme treatment-all carefully documented and appropriately presented in the scientific literature. One would think that such reports would have quickly mobilized the power of
1633	2004	MAG	TotalHealth	A	B	C	was vilified in editorials in medical journals, mocked in the newspapers, belittled at scientific conventions. But Beard stuck to his course, fought back in articles and letters
1634	2004	MAG	TotalHealth	A	B	C	effective, non-toxic treatment for all cancer. The press of the time, the scientific and medical community at large latched onto radiation as the final solution to this frightening
1635	2004	MAG	TotalHealth	A	B	C	than " scientism " is legally prevented from practicing. They also simply ignore any scientific data that does not fit their belief system. But can't we rely on
1636	2004	MAG	TotalHealth	A	B	C	not fit their belief system. But can't we rely on the results of scientific studies? I wish this were always so. Unfortunately, both clinical experience and
1637	2004	MAG	TotalHealth	A	B	C	make it illegal for stores that sell supplements to hand out copies of well done scientific studies showing the effects of the supplements. In one legislative stroke it became illegal
1638	2004	MAG	TotalHealth	A	B	C	give you information about how they can help you get well-regardless of how good the scientific data was supporting the claim. Legislation was also pushed through saying that anyone who
1639	2004	MAG	TotalHealth	A	B	C	were (mistakenly) taught in medical school that nutritional and natural therapies had no scientific basis and were only used by quacks. We were told that only " old-fashioned
1640	2004	MAG	TotalHealth	A	B	C	" old-fashioned " doctors would use these treatments. Thus, despite large amounts of scientific data supporting natural medicine, you'll find that your doctor will usually not have
1641	2004	MAG	TotalHealth	A	B	C	. The good news is that as more and more doctors familiarize themselves with the scientific literature, many are becoming more open minded to therapies that can help you.
1642	2004	MAG	TotalHealth	A	B	C	large family of proteins, which participate in the inflammatory response. Numerous clinical and scientific studies have shown over the decades the mechanisms by which systemic enzymes modulate the immune
1643	2004	MAG	TotalHealth	A	B	C	, the idea that suffering is good is a misconception. Both clinical experience and scientific research suggests that what works best is to keep those things in your life that
1644	2004	MAG	TotalHealth	A	B	C	is a mix of the natural estrogens estriol and estradiol. My reading of the scientific literature suggests that estriol actually decreases the risk of breast and other cancers. In
1645	2004	MAG	TotalHealth	A	B	C	right? Wrong. After over 50 years of widespread use and testing, no scientific proof exists that shows fluoride prevents tooth decay. Actually, most research shows that
1646	2004	MAG	TotalHealth	A	B	C	pastas. Low-carbing had come back, but this time with a clarity and a scientific validation that had simply not been present in previous decades. It's time now

Fig. 1: Sample concordance lines for 'scientific' from COCA

'Pseudo-scientific' occurred a total of 12 times in the magazine category of CODA and all these keywords in context are provided. These all support the definition of pseudo-science provided by Oxford Dictionaries online given above. There may however be increasingly negative connotations associated with the use of the adjective 'pseudo-science' in context, for example: '[...] the archaic system of pseudo-scientific racial labelling' (20); '[...] racist, pseudo-scientific Hutu antiTutsism' (3); and '[...] truly homophobic and pseudo-scientific books on AIDS' (8):

1	2012	MAG	ChristCentury	A	B	C	. " In fact, the term- like its counterparts quadron and octoroon- connotes the <u>pseudo-scientific</u> classification of the slave era. It presents a human being not as a thinking
2	2007	MAG	PopMech	A	B	C	kid you not) ectoplasm traps -- that claim to improve fuel economy for various <u>pseudo-scientific</u> reasons. None have helped, and some have actually hurt performance. Your shop
3	2004	MAG	ChristCentury	A	B	C	not produce racist, pseudoscientific Nazi anti-Semitism any more than Rwandan Christianity produced racist, <u>pseudo-scientific</u> Hutu antiTutsism. But a misunderstanding of Christianity in Germany (and throughout Europe)
4	2003	MAG	PopScience	A	B	C	that the metal is compressed to a higher density, a popular goal in certain <u>pseudo-scientific</u> circles. I should have made it clear that while the diameter is reduced,
5	2003	MAG	Atlantic	A	B	C	moral duty to provide them with the best care and treatment possible. Hitchens's <u>pseudo-scientific</u> claims about the significance and validity of research are without any basis in fact.
6	2000	MAG	AmSpect	A	B	C	and in " scientific " reports about missile defense, they offer much the same <u>pseudo-scientific</u> arguments as they did against Star Wars. # In July, the Federation of
7	1994	MAG	ArtAmerica	A	B	C	Joo's witty though at times overly obscure investigations of cultural clichs. Using a <u>pseudo-scientific</u> format, he presents such " studies " as a comparison of the shapes of
8	1994	MAG	WashMonth	A	B	C	Washington Monthly is approximately 30,000.) But considering that plenty of truly homophobic and <u>pseudo-scientific</u> books on AIDS sell like hotcakes -- The AIDS Cover-Up, for example, which
9	1994	MAG	NewRepublic	A	B	C	would lead the fight to dismantle not only racial preferences but the archaic system of <u>pseudo-scientific</u> racial labeling -- for the best liberal reasons. # In its fascination with social
10	1993	MAG	USAToday	A	B	C	History in Christian Perspective echoes this assessment. Charles Darwin's discoveries are called " <u>pseudo-scientific</u> ideas " that " tore away the moral foundation of the European nations. "
11	1993	MAG	Ebony	A	B	C	. That widespread negative view is further reinforced and given credibility by a plethora of <u>pseudo-scientific</u> sociological studies which consistently ignore the preponderance of positive data while concentrating on the negative
12	1991	MAG	NatReview	A	B	C	sorts. # What Marxism accomplished was to discipline those utopianisms and give them a <u>pseudo-scientific</u> purchase upon the inevitable' course of history. The Marxist consolidation of the varied

Fig. 2: Sample concordance lines for 'pseudo-scientific' from COCA

In practice, when analysing cosmetics advertising language it can often be difficult to differentiate between that which is based on science and that which simply *sounds* as if this is the case. The terms 'scientific' and 'pseudo-scientific' are used interchangeably as near-synonyms throughout this article.

In the data analysed, a substantial number of both textual and visual elements of 'scientific' language in advertising is explored. This article will examine the phenomenon of a scientific discourse to sell cosmetics, with particular reference to cosmetics science and current research investigating the science behind the claims made in beauty advertisements. The analysis proper takes the form of qualitative discussion of textual scientific or pseudoscientific elements from the data, whilst quantitative analysis is employed to compare frequencies in the occurrence of this language feature in the English with the French data under investigation.

As noted previously, the language of cosmetics elements employs a scientific, or, more accurately, *pseudo-scientific* discourse in advertising copy as a persuasive technique to convince the consumer of the product's efficacy. Increased use of scientific language in beauty advertisements may be symptomatic of the broader growing trend

of so-called 'cosmeceuticals', the term being a blend of 'cosmetic' and 'pharmaceutical'. The US Food and Drug Administration website states that this term is used in the cosmetics industry with the general meaning that it is a cosmetic with drug-like benefits (*Cosmeceutical* 2000). The legal distinction between drugs and cosmetics is that drugs are products which cure, treat, mitigate or prevent disease or that affect the structure or function of the human body. Cosmetics, however, do not. An example of what could constitute a cosmeceutical is an Alpha Hydroxy Acid (AHA): an exfoliant which can remove the surface layer of skin to treat scars, wrinkles, acne and lighten skin. As removing a layer of skin could be regarded as affecting body structure, this could be considered a drug under FDA regulations (*Alpha Hydroxy Acids in Cosmetics* 2011).

It would perhaps be expected for AHAs and other cosmeceutical product advertising to contain some scientific discourse due to the nature of the cosmetic being advertised; however, this language occurs in products which are generally *not* classed as cosmeceuticals. In some ways the use of scientific-sounding language could be seen as a slightly unusual technique in beauty advertising as there is not always necessarily a clear connection – known as the level of *congruence* – between the scientific register and the cosmetic being promoted. The presence of scientific or scientific-sounding lexis can be related to a trend throughout advertising language, and beauty advertising in particular: the presence of a problem-solution discourse (see Hoey 1983, 2001; Jeffries 2007, Mills 1995), in which cosmetics are 'treatments' for various 'problems': eyelashes are too short; skin is too pale; hair is too flat. Using a language of science may be an attempt by the brand to reassure the consumer that the beauty products are founded on scientific research. This is not to say that the brands do not conduct research, or that

the product may not deliver any of its claimed benefits; however, often the claims are not unproblematic, which will be discussed in the following section.

1.2 Exploring scientific claims in beauty advertising

There are some well-researched popular online resources available to help the consumer find out more about what the claims mean and what research lies behind them. Of particular note are the Beauty Brains, Paula Begoun, and Ben Goldacre.

The Beauty Brains are a team of cosmetics scientists who answer queries regarding advertising claims and offer various beauty advice on their website www.thebeautybrains.com (which has the tagline ‘Real scientists answer your beauty questions’) and in their recent book (Romanowski 2011) questions addressed include ‘What’s the difference between unscented and fragrance-free?’ and ‘What Does “Reduces the Appearance of” Mean in Beauty Claims?’.

Paula Begoun, known as the Cosmetics Cop, commissions research into scientific ingredients and scientific claims in cosmetics advertising, with a particular emphasis on informing consumers about which products could be irritating to their skin and hair, in addition to dispelling various myths perpetuated by the beauty industry. Her guide to cosmetics claims on advertising and advice on purchases also includes an extensive cosmetics dictionary (2012). An ingredient dictionary which provides links to research on various ingredients can be found on her website (<http://www.paulaschoice.com/>, <http://www.paulaschoice.co.uk>). It should be noted that Begoun has developed her own range of beauty products which she sells on the same website; nonetheless her product recommendations are comprised of numerous brands.

Ben Goldacre is a UK academic, physician and scientist who has written extensively on what he terms 'bad science' in popular domains, particularly within the British media. In his books, blog (www.badscience.net) and newspaper column (<http://www.guardian.co.uk/science/series/badscience>), Goldacre deciphers various scientific claims often found in popular discourses, particularly within media domains. In his book *Bad Science* (2009) he has a chapter dedicated to explaining and often countering cosmetics advertising claims.

Some key themes emerged from the above resources exploring the claims of the scientific register of cosmetics advertising discourse. Firstly, although a particular ingredient may indeed have benefits in a laboratory context, this does not necessarily mean it will have a positive effect on a consumer's skin. As higher concentrations of certain powerful ingredients may irritate and damage skin's outer layer, legal regulation may insist that only low levels be included in cosmetics formulas, and therefore the results could be less effective (Goldacre 2009: 22). Additionally, it should be noted that cosmetics companies are not required by law to display the dose or concentration on the label (Goldacre 2009: 22). Secondly, the cream may not have been tested on human skin, and therefore topical applications may offer reduced or little benefit. As Goldacre (2009) elaborates:

The beauty companies are not necessarily being dishonest when advertising copy claims: "Molecule X-GEN 24 is proven to significantly improve skin cell-turnover", but this may be misleading if a. this was tested on lab animals, and b. the 0.5% of the product it makes up is unlikely to have any such benefits (Goldacre 2009: 23).

Whilst the advertising copy may lead the consumer to believe that our body, skin and hair requires various ingredients for proper cell turnover, growth, function and vitality, but this is not always the case:

Classically, cosmetics companies will take highly theoretical textbookish information about the way that cells work – the components at a molecular level, or the behaviour of cells in a glass dish – and then pretend it's the same as the ultimate issue of whether something makes you look nice. 'This molecular component', they will say, with a flourish, 'is crucial for collagen formulation'. And that will be perfectly true (along with many other amino acids which are used by your body to assemble protein in joints, skin, and everywhere else), but there is no reason to believe that anyone is deficient in it, or that smearing it on your face will make any difference to your appearance (Goldacre 2009: 23-24).

Recent advertising claims have included references to DNA and cell renewal, which are both refuted by Goldacre, who argues: 'it's spectacularly unlikely that DNA – a very large molecule indeed – would be absorbed by your skin, or indeed be any use for the synthetic activity happening in it, even if it was' (2009: 24). Similarly, the Beauty Brains reiterate that skin creams cannot affect cell production or metabolism (Romanowski 2001: 65). However, the advertising copy might say that creams, lotions or serums 'help' stimulate cell production which is vague and in theory could be true (Romanowski 2011: 65). Indeed, it should be noted in this context that the Advertising Standards Authority (UK) and the Autorité de Régulation Professionnelle de la Publicité (France) respond to consumer complaints regarding advertising which is offensive, misleading or untruthful. However, even if advertisers often do use legally appropriate terms, which is generally the case, in some instances the language used still remains problematic or difficult to decipher.

Another important caveat is that the claims on advertising copy apply to the entire product, not just the key or active ingredients mentioned (Goldacre 2009: 25). Therefore, if a facial moisturiser has a claim such as 'contains collagen – skin hydration is improved after only one application', this may lead the consumer to infer that it is

collagen which is the main factor in its hydrating benefits, which may not necessarily be the case, as other ingredients could contribute. Goldacre summarises this as follows:

Look closely at the label or advert, and you will routinely find that you are being played in an elaborate semantic game, with the complicity of the regulators: it's rare to find an explicit claim that rubbing this particular magic ingredient on your face will make you look better. The claim is made for the cream *as a whole* and it is true for the cream as a whole, because as you now know, all moisturising creams – even a cheap litre tub of Diprobase – will moisturise (Goldacre 2009: 25, original emphasis).

With regard to the actual scientific research behind the product advertising claims, this may be difficult to determine. In many, but not all, cases, the only studies which exist are those commissioned by the brand itself, or the industry, which inevitably raises issues of bias. In addition, this research is seldom retrievable in published academic forms (Goldacre 2009: 21-23). This is not to say that extensive research does not exist, but in many cases the real lack of availability, transparency and independent studies mean it is often difficult to evaluate claims made on the advertising copy (Goldacre 2009: 21-23). A further issue is that consumers may have neither the time nor resources to investigate these issues for themselves, and whilst there is a wealth of information available on the internet, it is often conflicting and confusing.

It should be emphasised consumers do not necessarily buy products based solely on scientific claims but for numerous other reasons: luxury, status, brand loyalty, convenience, and the experience of purchase, to name but a few. However, scientific discourse might influence a consumer to some extent, even if Dodds, Tseïlon and Weitkamp's (2008) exploratory study suggests consumers (at least those in a scientific context) may be sceptical about such claims (see 1.9 for more on this topic). Goldacre (2009: 26-17) links the use or abuse of science in cosmetics advertising to broader,

gendered issues, arguing that scientific-sounding beauty advertisements are used to sell products mostly to a demographic of attractive young women, who tend to be unrepresented in a scientific context. Therefore, if we contextualise the research at hand, the potential misrepresentation of science in these advertisements is a key issue with regard to consumer response, gender, and purchasing behaviour.

1.3 Methodology

The main methodology of this article comprises close linguistic analysis of ‘scientific’ discourse from a corpus of cosmetics advertisements. The main framework for analysis is Feminist Critical Discourse Analysis (FCDA). In broad terms, FCDA critically approaches texts using a range of linguistic methods with a feminist impetus, and the term is generally attributed to Lazar (2005). The data is comprised of 495 cosmetics advertisements, of which 249 are French and 246 English, taken from Metropolitan French and British English editions of *Elle* and *Cosmopolitan* magazines, May to September 2011 inclusive. The corpus is specialised in that it contains texts from a particular genre and time period, and comparable in that it contains similar representative components in the two sub-corpora (McEnery, Xiao and Tono 2006: 46-47). Comparable French-English critical discourse analysis of advertising have not been prevalent; one notable exception being Kuhn and Lick (2009). The corpus was created using ATLAS.ti software, and is therefore an example of computer-facilitated analysis (Dörnyei 2007: 262-266; Friese 2012: 1-2). Baker (2009) has emphasised the benefits of utilising corpus methodologies in Critical Discourse Analysis research. Each advertisement was examined and then tagged for all instances of what might be classed as ‘scientific’ discourse, and thus the various manifestations of this were uncovered via

'bottom-up', data-focused research (Sunderland 2004). The foci for qualitative analysis are as follows: 'Scientific' ingredients (1.4); 'Scientific' product names (1.5); Use of figures and statistics as authentication (1.6); and Product design and features (1.7). It should be noted that these were some of the key manifestations of scientific discourse found in the corpus; however, there were others but discussion of more categories would go beyond the scope of this article.

Following the qualitative discussion, statistical methods are employed to compare the frequencies of scientific language in the French data with the English data (section 7.6) and thus this article also makes use of a mixed-methods approach. As two samples (French advertisements and English advertisements) are being compared and contrasted, the chi-square test is used to measure significance. This investigates if there is any *real* difference between the two data sets. Quantitative research methods, summarised very broadly by the questions 'how much?' or 'how many?' (Rasinger 2008: 10-11), are therefore applied to the data under analysis as an additional measure to strengthen qualitative findings.

1.4 'Scientific' ingredients

References to various scientific, or perhaps more often, scientific-sounding ingredients were found throughout the corpus. Where the same advertisement appears in both English and French in the corpus, the brand translation of the text is used. Otherwise, the author's own translation has been provided. Advertisements tended to refer to one or two specific ingredients used in their product formulations, for example:

[Formule anti-choc au] **pro-silicium** [pro-silicum] (*Bourjous Vernis 10 Jours* [10-Day Nail Polish], *Elle France* 22 June 2011)

Glycoprotéines bioactives [Bioactive glycoproteins, my translation] (*Six Crème Nuit Régénérante* [Regenerating Night Cream], *Elle France* 6 May 2011)

La viniférine [viniferine, my translation] (*Claudalie* Vinoperfect [anti-ageing moisturiser], *Elle* France 8 July 2011)

Peptide biotechnologique [biotechnological peptide, my translation] (*Lierac* Body-Slim slimming cream, *Cosmopolitan* France May 2011)

Le Super Acide Hyaluronique-Bio [organic super hyaluronic acid, my translation] (*Shiseido* WrinkleResist 24, *Elle* France 17 July 2011)

Arguably, the consumer does not necessarily know what these ingredients do or how they work. Their function is often elaborated in the body copy of the advertisement, which may outline the ingredient and its benefit, for example:

Improved efficacy with 5X more **Hyaluronic Acid, an ingredient** produced naturally in the skin **that binds with moisture to give a plumping effect** (*Eucerin* Hyaluron-Filler day cream, *Elle* UK September 2011).

At other times, the ingredients may be somewhat vague or referred to a combination of possible ingredients, which are inferred to have positive effects:

Activateur de microcirculation [microcirculation activator, my translation] (*Vichy* Aqua Destock cellulite treatment, *Cosmopolitan* France May 2011)

Anti-pollution and anti-oxidant ingredients (*Neutrogena* Multi-Defence Daily Moisturiser, *Cosmopolitan* UK June 2011)

A cocktail of minerals and plant extracts (*Clarins* Skin Illusion foundation, *Cosmopolitan* UK May 2011)

A unique blend of peeling active ingredients (*Vichy* Normaderm skin care *Cosmopolitan* May UK 2011)

Some ingredients were patented and/or had been (re)named by the company, which added to the scientific register. Short descriptions of what the ingredient actually were often, but not always, found in the advertising copy. For example, **LR2412** (*Lancôme* Visionnaire LR2412 4%, *Elle* France 9 September 2011) is explained as ‘une molécule’ [a molecule] in the main body of the advertisement, whereas **Pro-Gen®** (*L’Oréal* Youth Code face cream and serum, *Cosmopolitan* May UK 2011) was not, but in

the context of the advertisement the consumer infers it is an ingredient linked in some way to DNA or skin regeneration.

As discussed earlier in the article, these ingredients might not always be effective in a cream format, due to low concentrations or issues with storage. Nonetheless, their presence in a beauty advertisement is used as a persuasive strategy to help convince the consumer that their products do actually work due to these active ingredients. Rhode (2010) links pseudo-scientific discourse to the continual quest for self-improvement perpetuated in the media discourse:

Advances in science and technology have created new opportunities for “self-improvement” and corresponding pressures to take advantage of them [...] Other appearance-related products, now cloaked in a veneer of pseudo science, promise effortless perfection. “Space age slenderiser” and “poly-u collagen peptides” offer to shed consumers’ unwanted pounds and wrinkles overnight (Rhode 2010: 8).

There may therefore be a connection between pseudo-scientific discourse and problem-solution discourses in female-targeted cosmetics advertising, in that the solutions are ‘scientised’ and made to appear more authentic or effective. ‘Scientised’ is used here to mean ‘made to sound (more) scientific’.

1.5 ‘Scientific’ product names

In addition to the scientific-sounding product ingredients, several advertisements from the corpus contained product names which had scientific connotations. This may be a deliberate strategy by the brand to bestow upon their product associations of science and consequentially authenticity and connections to cosmetic research. Examples include:

Rexaline (anti-wrinkle treatment) (*Elle France* 10 June 2011)

Lierac Paris **Body-Slim Concentré Multi-Action** [Body-Slim Multi-Action Concentrate] (*Cosmopolitan France* May 2011)

Shesido WrinkleResist 24 [skincare range] (*Elle* France 17 July 2011)

Lancôme Visionnaire LR2412.g 4% (*Elle* France 9 September 2011)

E45 DermaRestore Endless Moisture lotion (*Elle* UK August 2011)

Garnier ExfoBrusher (*Cosmopolitan* UK July 2011)

Lancôme Génifique Activateur de Jeunesse [Youth Activating Concentrate Serum] (*Elle* France 20 May 2011)

L'Oréal Lash Architect 4D mascara (*Cosmopolitan* UK June 2011)

Palmers Cocoa Butter Formulas (*Cosmopolitan* UK June 2011)

Clinique Pore Refining Solutions (*Cosmopolitan* UK September 2011)

L'Oréal Revitalift Total Repair 10 (*Elle* France 16 August 2011)

These scientific-sounding product names were especially frequent in higher-end skincare brands in which, considering the brand literature as a whole, attempted to consistently emphasise their links to scientific research and general health. Three such brands are *Vichy*, *Eucerin* and *Clinique*, and some examples of their product names are listed below:

Vichy Normaderm Tri-Activ Anti-Imperfection Care (*Cosmopolitan* UK May 2011)

Clinique Even Better concentré anti-taches correction teint [official translation: clinical dark spot corrector] (*Cosmopolitan* France May 2011)

Vichy Liftactiv Dermalsource (*Elle* UK June 2011)

Eucerin Hylaruon-Filler Jour [Hyaluron-Filler Day cream, *Elle* France 13 May 2011)

Vichy Liftactiv 10 sérum [serum] (*Elle* France 18 September 2011)

Eucerin AQUAporin ACTIVE Moisturising Cream (*Elle* UK May 2011)

For these brands in particular, in addition to many others, the connection between cosmetics and science is an integral component of their marketing strategies. Eucerin's most recent slogan is 'skin science that shows' and their webpage contains a section outlining 'Our philosophy of dermo-cosmetic skin care', displaying lexis of 'a medico-scientific register or voice' (Fairclough 1992: 171-176; *Our Philosophy* 2014).

1.6 Use of figures and statistics as authentication

Figures and statistics are often associated with a scientific or technical register, and in the advertisements under analysis they were often employed to emphasise the concentration of the product's active ingredient, for example:

10x more concentrated in Pro-Gen® (*L'Oréal Youth Code* face cream and serum, *Cosmopolitan* UK May 2011).

5x PLUS d'Acide Hylaruonique [Five times more Hyaluronic Acid, my translation] (*Eucerin Hylauron-Filler Jour* [Day cream], *Elle* France 13 May 2011)

La caféine active dosée à 10%, combinée à l'extrait de sureau [10% strength caffeine combined with elderberry extract, my translation] (*Lierac Body-Slim soin minceur* [slimming cream], *Elle* France 20 May 2011)

Caféine pure 3% [3% pure caffeine, my translation] (*Vichy Aqua-Destock* [slimming cream], *Cosmopolitan* France May 2011).

Statistics were often employed to express how many women were satisfied with the product's results in brand trials or tests, for example:

94% des femmes recommanderaient ce produit à leurs amies
[94% of women would recommend this product to their friends, my translation]
(*Lierac Body-Slim soin minceur* [slimming cream], *Elle* France 20 May 2011)

The consumer should however be wary of these types of statistics, as the number of women in the test group can vary enormously according to product. For example, the advertisement for Aveeno Skin Relief Lotion stated that:

90% of women felt their skin was more soothed and hydrated after only one day (*Aveeno Skin Relief Lotion, Cosmopolitan* May UK 2011)

The asterisk at the bottom clarified that this was 90% of 191 women, which translates to 172 women. For comparative purposes, another advertisement for *Lancôme Visionnaire* LR2412 4% anti-ageing serum claimed the product was:

[...] si puissant que plus d'1 femme sur 2 tentée par une intervention esthétique a l'intention de la reporter [...] so powerful that more than half of women considering a cosmetic procedure said they would delay it (*Lancôme Visionnaire* LR2412 4%, *Elle* France 9 September 2011)

The advertisement stated that this referred to 34 women, therefore 17 women in total said they would delay having cosmetic surgery due to using this product. These kinds of statistics may have been deliberately chosen and worded to present the product in a particular light. The use of '1 in 2' is a natural frequency, which may be more easily understood and assimilated, as opposed to percentages (Goldacre 2009: 257). If the sample groups are small, this has the potential to make any good consumer experiences in trials appear disproportionate in the percentages. From a marketing perspective, positive test results can be used to convince company employees and executives '[...] that the cream merits the money and effort that will be put behind it' (Tungate 2011: 143).

Other statistics focused on how long the product's effects lasted, how well the product could perform, or its originality, for example:

Anti-frizz 48 heures [48 hours Anti-Frizz] (*Elsève Liss-Intense* shampoo and conditioner, *Cosmopolitan* France August 2011)

80% more colour radiance protection (**lab test, *L'Oréal Elvive* Colour Protect, *Elle* UK June 2011)

préserve l'éclat pendant 7 semaines [preserves colour for 7 weeks, my translation] (**test instrumental) (*Dessenge Réveil'Color* [Colour Revitalise] shampoo), *Elle France* 13 May 2011)

20 brevets déposés (20 patents pending) (*Lancôme Visionnaire LR2412 4%*, *Elle France* 9 September 2011)

À 28 jours: Silhouette affinée [After 28 days: a toned figure, my translation] (*Vichy Aqua-Destock* [slimming cream], *Cosmopolitan France* May 2011)

1 seule application par jour suffit pour 24h d'efficacité [Once-a-day application remains effective for 24 hours, my translation] (*Elancyl Offensive Cellulite* [cellulite cream], *Elle France* 19 August 2011)

Use of statistics in the corpus was used to emphasise product benefits or product reviews in a more authentic, mathematical format. Often, the use of a 'linguistic disclaimer' could be found in relation to these figures, for example:

Lasts **up to** 24 hours (*Maybelline The Falsies mascara*, *Cosmopolitan UK* July 2011).

In theory, therefore, the product could last 1 hour and the sentence would be true at a basic propositional level. However, the implicature is likely to be that the product lasts, at least if not 24 hours, a substantial length of time. This is certainly not to say that this particular product does *not* last for 24 hours; however, more generally this kind of linguistic ambiguity may enable advertisers to make increased claims about their product.

1.7 Product design and features

Another element of scientific discourse in the cosmetics advertisements analysed is an emphasis on product features and product design. These have been included in this discussion as they attempt to increase the science-like nature of these advertisements, in particular the notion that the product has been well-designed, thus improving its

overall efficacy, such as a rotator brush on the mascara to capture even the shortest eyelashes. With regard to problem-solution discourse in advertising, often the text on product design and features in the corpus emphasised a design flaw or problem which was then solved. In some cases, consumers may or may not be aware of the problem's existence before viewing the ad: the excess mascara wiper on the mascara brush tube (to avoid messy spillage and wastage of product); the pump bottle (for accurately measuring the amount of product necessary for one application); foundations with attached brushes (to improve the finish of the make-up and avoid orange hands); facial cleansers with bristles (to disperse product and exfoliate the skin). By extrapolation, other products which do not have these features may be viewed as more wasteful, less user-friendly and inadequately-designed. Product design and features were often described in a technical register with medico-scientific connotations. These tended to take the form of noun phrases which implied superior design and ease of application, as the following examples demonstrate:

Pointe biseauté [slanted tip –on applicator brush, my translation] (*Bourjous Vernis 10 Jours* [10 Day Nail Polish], *Elle* France 22 June 2011)

Ultra-wide micro-diffusion spray (*Garnier Sublime Bronze self-tan*, *Cosmopolitan* UK June 2011)

La 1ère brosse millioniser [The first Millioniser brush] (*L'Oréal Volume Million Lashes mascara*, *Elle* France 13 May)

Our 1st pen applicator (*Maybelline ColorSensational Lipstain*, *Cosmopolitan* UK September 2011)

Spoon brush (*Maybelline The Falsies mascara*, *Cosmopolitan* UK July 2011)

Application gets easy: non drip mousse. As easy to apply as a shampoo (*Casting Crème Sublime Mousse hair colour*, *Cosmopolitan* UK July 2011)

These examples emphasise innovative product packing and design, which create the impression of enabling the consumer to get the best out of that particular cosmetic.

1.8 Statistical analysis: French/English comparisons

The French data contained 166 advertisements displaying some element of scientific language out of 247 total advertisements, whilst the English data contained 118 advertisements displaying some scientific language out of a total 246 advertisements. Expressed as percentages, 67% of all French advertisements in the corpus contained scientific discourse, compared to 48% of all English advertisements, as shown in the tables and charts below. Scientific language was found to be a more commonly-occurring feature in the French data under analysis as opposed to the English data.

Advertisements in the corpus	495
Of which	
Total French ads	249
Total English ads	246

Total number of ads which were tagged with "Scientific"	
Number of French "scientific" ads (out of total number of French ads)	166 /249 = 67%
Number of English "scientific" ads (out of total number of English ads)	118 /246 = 48%

Fig. 3: Advertisements containing 'scientific' discourse

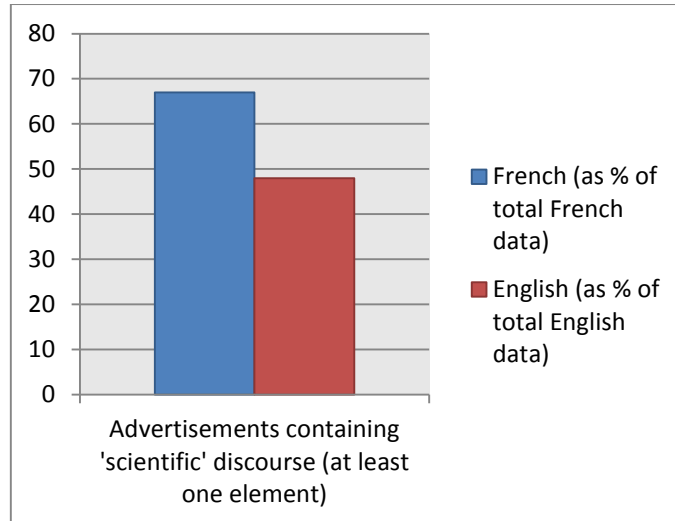


Fig. 4: Occurrence of 'scientific' language in the French and English data

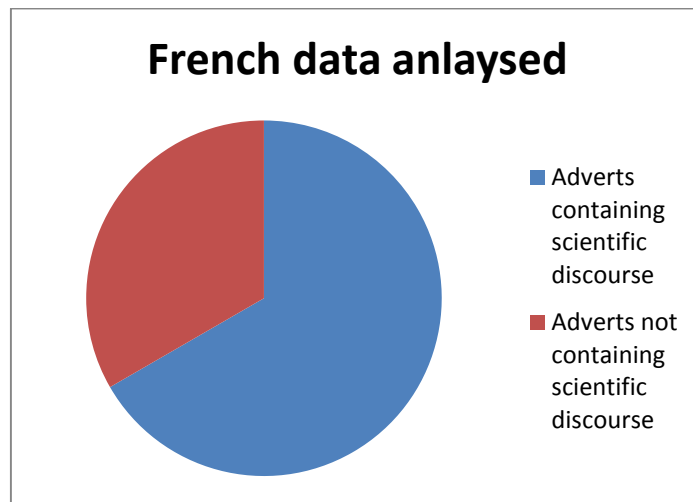


Fig. 5: French advertisements containing 'scientific' discourse

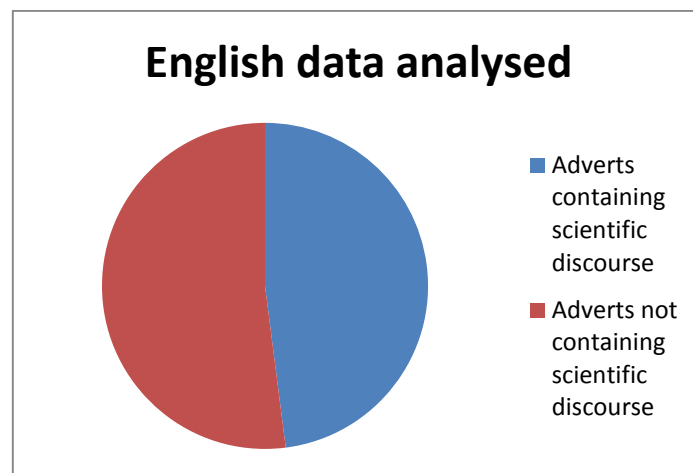


Fig. 6: English advertisements containing 'scientific' discourse

A chi-square test was conducted to determine whether there was a statistically significant difference between the frequency of French advertisements containing an element(s) of 'scientific' discourse and the frequency of English advertisements containing an element(s) of 'scientific' discourse. Although raw figures and percentages do indicate differences in the data and may point to trends, the use of statistical research methods enables the researcher to comment upon whether the differences are statistically meaningful at a particular margin of error. The null hypothesis states that there is no significant difference between the two groups (Crawley 2005: 3) and is often hoped to be proven wrong in certain research contexts (Woods, Fletcher and Hughes 1986: 120). In this case, the null hypothesis states that the differences in frequency between the French advertisements containing 'scientific' discourse and the English advertisements containing an element(s) of 'scientific' discourse are random. The alternative hypothesis is that the differences in the number of French and English advertisements containing 'scientific' discourse is due to significant differences between the two data sets. The chi-square test was conducted using SPSS and produced a p value of 0.001. As $p = 0.001$, this value is less than 0.05 (5%) which is the generally agreed significance level (Crawley 2005: 3). We can fail to accept the null hypothesis in favour of the alternative hypothesis and conclude that the differences between this language feature in the French and English data are significant and not random.

The statistically significant predominance of the occurrence in the French data over the English data was a major finding of this article. One possible explanation for this phenomenon is the predominance of 'slimming creams' and other related topical firming and toning treatments in France. One 2004 newspaper article estimated that whilst British women spend up to £30 million a year on slimming creams, the French

market was worth £50 million annually, with a 10% market increase in France every year from 1992 to 2004 (Sparks 2004). In L'Hussier's (2012) study of the slimming practices of working-class women in Northern France, use of topical firming creams featured as a physical technique employed by study participants.

These creams, along with many other cosmetic products, are sold predominantly in pharmacies and 'parapharmacies' in France, where the employees generally offer advice on product suitability and usage to the consumer, which is not generally the case in the UK. This may serve to increase the authenticity of these products as there may be an increased connection with these creams to health and well-being.

The language used to advertise slimming creams specifically often uses scientific or pseudo-scientific language, which could be due to the nature of product: the brand may be keen to describe what ingredients facilitate skin-firming, what studies have been done and consumer trials of the product. On one level, the predominance of these products in the French market meant that more advertisements of this kind appeared in the corpus. This could contribute towards an explanation of the predominance of French advertisements from the corpus displaying elements of scientific language. However, on a more general level, it could be suggested that if both French advertising copywriters and consumers are more accustomed to this type of register and jargon due to the popularity of these creams, then this discourse has influenced or infiltrated other beauty product marketing. More research would of course be needed to substantiate this claim; nonetheless the findings here may provide a useful starting point.

1.9 Conclusions

Before drawing any firm conclusions, it is worth considering the potential reader response to the pseudo-scientific discourse analysed in this article. Dodds, Tseëlon and Weitkamp's (2008) research focuses on British consumer attitudes towards use of scientific claims in advertisements for functional foods (such as probiotic yoghurts) and cosmetics. These two products are similar in that scientific, or pseudoscientific, claims are used to persuade potential consumers of product benefits (2008: 211) and they are also 'experience' products in that product evaluation takes place after product purchase and usage (2008: 212). The study aimed to explore whether women found scientific or scientific-sounding claims believable in the context of advertisements for cosmetics and functional foods (Dodds, Tseëlon and Weitkamp 2008: 214). They concluded that the consumer's scientific awareness is a component of how they interpret and critically assess advertising claims which draw on science, as participants tended to display scepticism over pseudoscientific claims in cosmetics advertising (Dodds, Tseëlon and Weitkamp 2008: 211-212). The participants in this particular study tended to be more incredulous, as opposed to confused over the claims made:

In general, a strong sense of doubt of the credibility of "advertising scientific discourse" was evidenced with regards to advertisements making scientific or pseudoscientific claims for cosmetic products. There was concern that they made false promises, and claims (visual or explicit) that were not supportable. Some particularly felt that the use of jargon (e.g. epidermal disorganization, micro-cysts) was off-putting. This supports the view from Economics of Information theory that claims based on science and pseudoscience are viewed sceptically although in this scientifically aware population this appears to be because the participants found the pseudoscientific language unbelievable rather than difficult to interpret (Dodds, Tseëlon and Weitkamp 2008: 220).

The focus groups for this study were relatively small, consisting of three focus groups each comprised of 4-6 female participants, as this was designed to be an exploratory investigation (Dodds, Tseëlon and Weitkamp 2008: 215). The participants in this study

had all worked in a scientific environment and had studied science to a certain level and were therefore likely to have a higher level of scientific awareness than other members of the British public. This was a deliberate decision by the researchers: if the participants in the focus groups had difficulty making sense of the claims, then a member of the public with very little or no scientific background may struggle even more (Dodds, Tseëlon and Weitkamp 2008: 213). Their study provides a useful context for analysis in this article, particularly with regard to considering the potential effectiveness of a scientific register and vocabulary in beauty advertising.

This article explored the phenomenon of scientific and pseudoscientific language in the cosmetics advertisements from the corpus. The qualitative linguistic analysis focused on 'scientific' ingredients; 'scientific' product names; use of figures and statistics as authentication; visual and textual elements on product design and features; visuals showing product effects; and miscellaneous scientific lexis. Statistical analysis using the chi-square test showed that the French data under analysis used more scientific discourse than the English advertisements. The subsequent discussion suggested possible reasons for this, with consideration of the popularity of slimming creams in France. Expressed as percentages, 67% of the French data contained advertisements displaying some element of scientific language, compared with 48% of the English advertisements. This finding provides a useful starting point for future research over a longer time period to ascertain whether scientific language is a more salient feature in French advertising discourse.

Additionally, it should be noted that a related phenomenon of a natural 'chemical-free' discourse was discovered whilst analysing the data, often employed to create positive connotations on products labelled 'organic' or 'natural'. In these

examples, the use of scientific jargon does occur but is often used in a slightly different way, with the suffix *-free* added to the lexical item: *paraben-free*, *sulphate-free*, etc. This kind of lexis is often combined with listing 'natural' ingredients on the product. This was identified as an interesting parallel to the scientific language analysed, with both 'natural' and 'scientific' lexis using a particular kind of jargon in order to represent their product in a certain light. Any detailed discussion would go beyond the scope of this article; however; it should be emphasised that this 'natural' discourse runs in parallel to the 'scientific' discourse and its manifestations in French and English cosmetics advertisements would be a key area for further research, especially in the context of popular UK media discourses constructing 'natural as good' and 'synthetic/artificial as bad'.

It should be emphasised that the majority of product advertisements are not necessarily being dishonest on their advertising copy; rather the scientific elements may be presented in such a way that the consumer has a particular understanding. However, an advertisement does have the potential to represent science in a problematic way, when in reality the human body is a complex organism which cannot necessarily be dramatically altered by a beauty moisturising cream contained 3% collagen extract (see Goldacre 2009: 24). Indeed, Dodds, Tseïlon and Weitkamp (2008) highlighted that consumers may be sceptical of these claims. A related issue is that consumers may not have the time or the facilities to do further research themselves into various product ingredients or the trials mentioned. For some consumers, the scientific lexis or the mention of studies may be a positive factor in choosing a particular brand over another.

This article has intended to demonstrate how cosmetics advertising creates and facilitates a connection between science and beauty which is reinforced through use of

a scientific language and register. This may not necessarily be an obvious connection at first. However, access to 'popular science' articles in the media could mean consumers are more aware of scientific language and are increasingly interested in finding out the facts behind the claims (although some of these popular articles may be misleading; see Goldacre 2009). Improved product formulations may also mean that there is a demand for brands to mention their research and various ingredients. On another level, as the market for cosmetics is continuing to increase at an enormous rate, brand marketing managers may turn to various linguistic strategies to differentiate their product from countless others.

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