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Statistical methods for the linguistic analysis of a humorous TV sketch show*

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Summary: In this article some statistical methods are applied to analyse a humorous TV sketch show, *Goodness Gracious Me!* The typical text and corpus analysis based on the frequency and distribution of individual words or on recurrent phraseology can only provide a first descriptive insight into a humorous TV product. In addition to text features, two other aspects must be considered: the presence of verbal and visual humorous stances and the way the audience perceive them. The article describes the results from the textual analysis of the show and from a survey study concerning the opinions of viewers on the type of humour which characterizes this particular TV programme.

Keywords: Textual data, Score data, Humour studies.

1. Introduction

Research on language and humour, despite a long tradition, attained a central position in the study of humorous discourse only in the late

(*) This article is the joint research of both authors: G. Balirano has written paragraphs 1, 2, 3, 3.2; M. Corduas has written paragraphs 2.1, 3.1.

1970s. The most influential theory in the field of linguistics is generally referred to as *The Semantic Script Theory of Humor* (SSTH), developed by Victor Raskin (1985). SSTH assumes that a joke is always related to two different mental frames (scripts), defined as an organized chunk of information on given lexemes, that are opposed to each other in a special way. In particular, a script is a structured set of information about an object, an event, an action, and at a lower level it is similar to the lexical meaning of a word. Scripts are connected by links which can be of different semantic types, such as synonymy, hyponymy, antonymy, etc.

The main hypothesis of the SSTH establishes two necessary and sufficient conditions for a text to be funny:

(a) the text is compatible, fully or in part, with two distinct scripts;

(b) the two distinct scripts are opposites (i.e., the negation of each other, if only for the function of a given text) on a list of dichotomies, such as real/unreal, possible/impossible, normal/abnormal, etc. (Raskin 1985, 99ff).

This approach has been widely applied to jokes, that is, short texts with a very tight narrative structure. A framework for the analysis of longer humorous texts was developed by Attardo (1997; 2001) who introduced the *General Theory of Verbal Humor* (GTVH) by adding, to this semantic theory, a number of parameters or knowledge resources (language, narrative strategy, target, situation, script opposition and logical mechanism) that can cooperate in the complex process of humour production and interpretation. A further extension was introduced by Balirano (2005) in order to include multimodal humorous products, such as films or TV productions, where script oppositions may be generated by the interactions of speech, images and sound.

The aim of this article is the study of a humorous TV sketch show from a quantitative point of view. This is a rather complex task given the multimodal nature of the product under investigation. As a matter of fact, a traditional textual analysis[1], which mainly relies on descriptive tools such as textual frequencies analysis, can only help identify some

[1] See, for instance, the contributions by Bolasco (1999, 2005); Lebart and Salem (1994); Oakes (1998) and Stubbs (2005) for a critical discussion.

linguistic features characterizing the text. Instead, in a humorous TV product there are other features that are relevant. First of all, the incongruities leading to the humorous effects may be related to images and sounds. Secondly, people may perceive and resolve the incongruities underlying the humorous instances in a different way and they may express a different degree of humour appreciation.

In this article, we examine a successful British TV programme, *Goodness Gracious Me* (*GGM*), and show how a variety of statistical techniques can help describe the underlying humour and cultural significance.

The article is organized as follows. Section 2 describes the corpus, a British TV sketch show, and discusses some linguistic features of the text. Section 3 introduces a model for evaluation data collected through a survey study concerning the appreciation of some humorous sketches. Finally, some considerations about influence of the ethnic origins on the different perception of *GGM*'s type of humour and its role in the social sphere will conclude the paper.

2. The corpus: Goodness Gracious Me!

Goodness Gracious Me is a British Asian TV comedy broadcast on BBC2 from 1998 to 2001. It was the first sketch-show, created and performed by Indian actors, to attract a sizeable white British audience (achieving more than 3.5 million viewers) and to become a big TV hit and a cultural phenomenon.

This great success would have been unthinkable just a few years before. In the 1970s and 1980s the mainstream media often portrayed Asians in terms of negative stereotypes and only in the 1990s did the second and third British Asian generations manage to break through a dominant white-oriented image becoming more conspicuous in the media after increasing their presence and role in the world of business, culture and sport (Luckett, 2003; Sawhney, 2001). *GGM* is the result of such social changes and constitutes a particular example of Britain's multicultural productions which try and represent new hybrid identities.

The TV programme has a style similar to that of classical British comedy shows and uses a very accessible kind of humour ranging from satire to slapstick, film and TV spoofs, hilarious farces and recurring characters. However, the stories of *GGM*'s sketches were all inspired by the actors/writers' diasporic experiences, suggesting, on the one hand, the difficult relocation of 'home', the struggle to establish a personal new dimension within the host nation and, on the other hand, the marked desire for a real Indian culture abroad. All the sketches convey the need for an authentic representation of India which seems to be very weak and Westernised within the imagery of second and third-generations. These feelings are expressed by means of a humorous narration which often reverses the roles so viewing the British from an Indian perspective or ridiculing Indian stereotypes.

The corpus, object of this study, consists of the three complete series of *GGM* which were broadcast on BBC2 from January 12th to February 16th, 1998, from November 13th to December 18th, 1998, and from February 25th to March 21st, 2000. Each series includes 6 episodes containing 13 to 19 sketches; all jingles, songs and other modes of mediated humorous representation displayed in the sketch-show have been excluded. In all, the series running time covers approximately 500 minutes of spoken English, organized in 286 sketches (about 56% refers to 15 recurring characters). The text[2] includes 50,945 words with 6,252 different types; moreover, 52.6% of identified types occur just once.

A preliminary characterization of the corpus can be achieved by means of a very simple textual frequency analysis. Of course, textual frequency does not necessarily indicate what viewers laugh at or notice and remember in the text; nevertheless it may provide some indirect information on the contents.

A list of the top ten verb lemmas does not reveal any special features:

[2] In this article, a word (type) is in general any distinctive string of characters (including apostrophes and hyphen but excluding other punctuation). The grouping of words in lemmas is explicitely indicated. Moreover, we adopt the following notation: the frequency of a word is delimited by the parentheses ( ) and a stretch of text is included in <…>. The results discussed in this section were obtained by means of the following softwares: WordSmith Tools 4.0 (Scott, 2000), kfN-Gram 1.2.2 (Fletcher, 2005), VPM (Youmans, 2006).

KNOW(250) THINK(178) COME(181) LOOK(180) SEE(141)
SAY(125) MEAN(120) WANT(113) TAKE(92) LIKE(75).

The most frequent verb lemma are usually very frequent in spoken English, when related to some colloquial expressions. However, many occurrences of *LOOK* (only 62 out of 180 refer to the common expression <…look,…>) are in expressions which introduce a comparison or attract attention to an object/subject constituting the basis of humorous instances. Similarly, the preposition *LIKE(150)* and the expressions *KIND OF(12)*, *SORT OF(15)* are often collocated with comical items such as: <…I'm *like* a twelve inch jungle track on vinyl..>; <….I like to think of myself as *a sort of*...Viagra for the soul…>, < In six days, He created Heaven and Earth and everything on them, and on the seventh day he rested...What *kind of* Indian doesn't work on Sundays?...>.

Table 1 illustrates a list of the adjectives which are both frequent and significantly more frequent than in the BNC sampler[3]. The presence of many adjectives referring to ethnic or religious origins qualifies the main focus of *GGM*. This consideration is further supported by the presence of other words which are not detected as keywords but refer to other connotations of ethnic groups. In addition to *ENGLISH(53)*, we find *BRITISH/BRIT(38)* and also the reference to the countries: *ENGLAND(21)* and *BRITAIN(14)*. Similarly, we find *INDIAN(99), ASIAN(70)* but also *PAKI/PAKISTANI(10), PUNJABI(18)* and *INDIA(53)*, *ASIA(4)*, *PAKISTAN(4)*. The ethnic connotation is completed by the terms concerning the religious beliefs and customs: *SIKH (16), HINDU(13), HINDUISM(2), MUSLIM(16)* and by the words *SKIN(12)*, and *WHITE(29)*, *PALE(1)* and *BROWN(12)* which are always used to refer in a direct or indirect way to the colour of the skin.

This list should not suggest the presence of a serious context because these words are mainly used in a comic way, so that we find stretches of texts as <…The first *Punjabi* adult pleasure line…>, <...the *Sikh* fire brigade...> <…Professional *Hindu Punjabi* boy seeks suitable girl for…>, <…model-turned-actress *Hindi* Crawford…>; a series of

[3] The BNC sampler consists of one million words of both spoken and written British English, extracted from the 100-million-word British National Corpus, as provided by Scott (2000).

sketches starting with a welcome to a TV programme such as: < *Asian* shopping channel>, <*Asian* Arts>, <*Asian* Top Gear> where we find the <…*Asian* motorist…>, an absurd dance <…*Punjabis* on Ice…> and so on. Moreover, as mentioned before, the role of British/English and Asian/Indian are often reversed so that expressions such as: <We *British*…>, <We're *British*…>, <…a peculiarly *British* habit…>, <…traditional *British* way of life…>, <… traditional *British* activities…> produce a humorous effect when pronounced by an Indian man pretending to behave like a true 'British gentleman'.

Table 1. Main adjectives

Adjectives	**Occurrence**	**standardized frequency** (every 10.000 words)
Indian	99	19.43
Little	73	14.33
Asian	70	13.74
Old	57	11.19
English	53	10.40
Big	40	7.85
Nice	39	7.66
Traditional	28	5.50
Modern	24	4.71
Happy	22	4.32
Fat	20	3.93
Funny	18	3.53
Muslim	16	3.14
Stupid	14	2.75
Hindu	13	2.55
Ethnic	12	2.36
Fancy	11	2.16
Paki/Pakistani	10	1.96
Marvellous	10	1.96

The recall of origins and traditions is strengthened by the words:

AUTHENTIC(6) *CLASSIC(7)* *GENUINE*(2) *ORIGINAL(4)* *OLD-FASHIONED(5)* *TRADITION/AL/ALIST/ALLY(39)*

which are frequently related to aspects of life. In the text we find expressions such as: <…*old-fashioned* wedding…>, <…*old-traditional* gender roles…>, <…*traditional* Indian girls…>, <...our *traditional* values…>, which become part of a script opposition satirizing the conservative view of Indian customs by linking a *normal* state of affairs (the common British life style) to an *abnormal state of affairs* (the exaggerated traditional Indian life style).

The words *MODERN(24)* and *NEW(60)* are other elements of the humorous mechanism since they are usually related to conflicting aspects of the western/eastern life as in the expressions: <…Today's *modern* Indian woman! Dressed in a full length burqa…>, <… Brown is the *new* black, innit!…>, <…I get all the *modern* diseases, because I'm so young and *modern* myself!...>.

Finally, a distinctive element in *GGM* is the use of a large number of items taken from the typical Indian English speech[4] adding up to the several characters names. A hybrid usage of language is, in fact, generated by the presence of terms such as *roti* (bread), *pukka* (authentic), *chuddies* (pants), *kabadi* (team), new words created adding English suffixes to Indian terms; such as *yogic*, *tantric*, and the very frequent expression *INNIT*(116), which replaces the standard *ISN'T IT*.

2.1 Co-occurrences and flow of information

A global view of some words of the text under study is obtained by correspondence analysis representation of the two-way contingency table of co-occurrences of the adjectives: *ASIAN*, *INDIAN*, *BRITISH* and *ENGLISH,* (Greenacre, 1984; Lebart and Salem, 1994).

[4] The Indianization of English is a very common practice among British Asian communities in the UK, a phenomenon which started during the British dominion over India and continues today (McCrum *et al*. 1992, 360). The typical Anglo Indian accent adopted in *GGM*, known as a chee-chee accent (see Wells 1982), differs most visibly from standard inflection particularly in the patterns of stress and intonation and this creates an overpowering humorous effect.

The analysis is mainly aimed at describing the data by means of a map where all the co-occurrences are plotted. In Figure 1, the row and column points are displayed in a two dimensional space where the first two axes explain 73% of the original inertia.

Looking at the column profiles, the first dimension qualifies the opposite position of *ASIAN* with respect to *INDIAN* whereas, as expected, the second dimension enhances the closeness of *BRITISH* and *ENGLISH* as opposed to *ASIAN* and *INDIAN*.

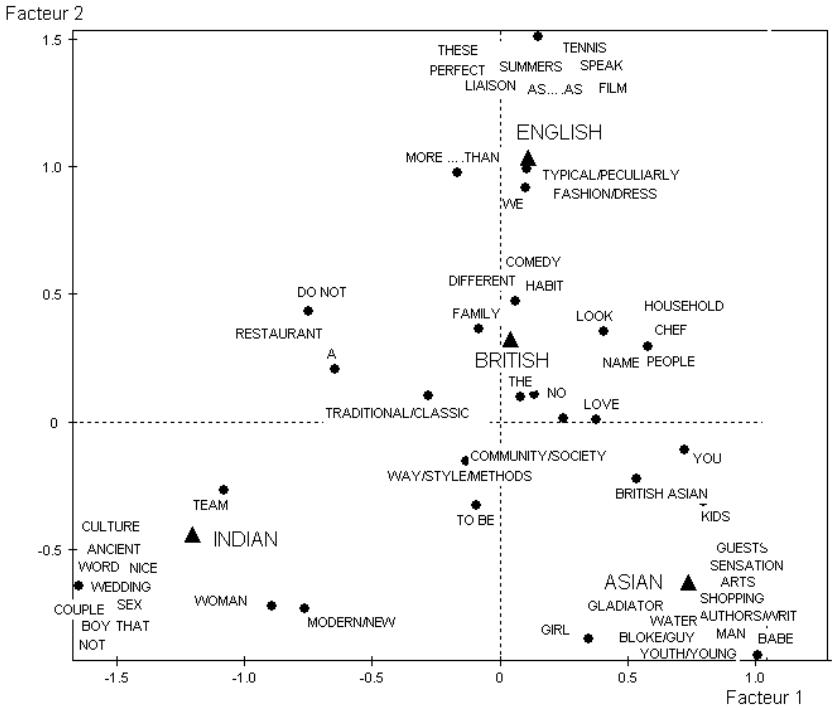


Figure 1. Correspondence Analysis of co-occurrences of the words: ASIAN, INDIAN, BRITISH, ENGLISH

The row points represent the co-occurring words. The positions of row points and column points with respect to each other should be

interpreted with caution since the two sets of points are not directly comparable.

However, it is noteworthy that *ENGLISH* is related to an ideal image which is <typical>, <peculiar>, <perfect>; it constitutes a reference point as in <more *English* than>, <as *English* as>, and a social group one aspires to belong to <We *English*..>. This ideal image clashes with the picture generated by the negative stereotypes of contemporary British society (drug abuse, unemployment, absence of family ties and so on) which are dealt with in several sketches of the programme and which determine the humorous incongruity.

On the other hand, *BRITISH* shares the role of ideal model and it maintains its positive connotation. The usage of this word, therefore, moves the focus of the discourse towards the behaviours which define the status of 'being British'. Here, we find expressions like <…*British* do not …>, <no *British* do…>, <…*British* love…> and other references to <*British* habit/methods/style/way of …>, <*British* family>, <*British* community/society>. The analysis of the sketches confirms the positive implications of the word *BRITISH* which is never used in negative or reversed situations.

The adjectives *ASIAN* and *INDIAN* are collocated in the lower part of the graph and are opposite to each other. The first one, *ASIAN*, implies a very positive idea since it is often associated with a new style and look of the Asian community in the UK. It collocates with <arts>, <literature>, <youth>, <shopping>, with emotions and curiosity (<sensation>). The second one, *INDIAN*, is more connected to the individual sphere. It collocates with the words: <wedding>, <sex>, <couple>, <boy> and <woman>. The latter, again, plays an important role in relation to the idea of a modern life style which is often proposed as a model that Indian women attempt to achieve. Also, the typical stereotype concerning the Indian culture, seen as <ancient>, traditional and spiritual, is frequently introduced in the comical representation of Indians abroad.

A second aspect which deserves some attention concerns the organization of the sequence of the sketches. It is clear that, in a sketch show the linear nature of the text is in some sense modified since one of the typical devices for mirth is the recurrence of characters and of the

sentences and vocabulary that they use. In order to understand how new vocabulary is introduced in the narration, we have considered the number of new words (new types) introduced over a moving interval (MTTR), proposed by Youmans (1990, 1991) as a sort of 'discrete' derivative of the type/token curve. Of course, this index varies between 1 (if all words in the interval are new types relative to all of the previous ones) and 0. Youmans pointed out that higher–level constituents of discourse tend to coincide with major peaks and valleys in this curve. Moreover, sharp upturns after deep valleys in the curve signal shifts to a new subject, new episodes in stories, and so on.

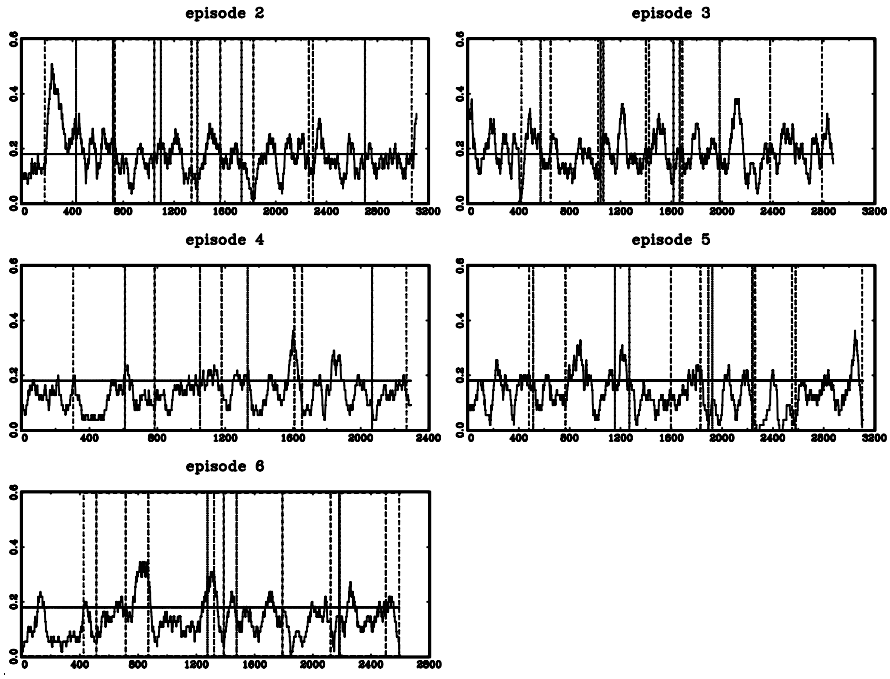


Figure 2. Moving Type/token ratio: GGM - Series 1, Episodes 2-6
(vertical line: sketch delimitation*; horizontal line:* 8th decile of the overall distribution*)*

Figure 2 illustrates the moving type/token ratio for the first series of *GGM*, having fixed an interval of 55 words; the first episode was used to initialise the vocabulary. The vertical lines indicate the end of each sketch. The horizontal line, instead, represents the 8th decile of the MTTR distribution of the whole corpus.

In some way the curves reproduce the information flow which is conveyed in the narration. The 8th decile helps detect visually the sketches where the flow of information is fairly large. Moreover, the plots enhance the role of repetitions in *GGM*. In each series, there are characters which recur in many sketches and which distinguish themselves for the repetition of specific words, locutions, themes, etc. Sometimes, the occurrence is iterated several times in the same episode with an increased comical effect. In this respect, Episodes 2 and 3 seem to be richer in themes compared to the other ones which, instead, tend to work more on repetitions. This is quite a common strategy in serial TV programmes where the initial episodes have to attract the attention of the audience and create a stable relationship with the viewers.

3. Humour and hybridity in GGM

The great success of *GGM* also relies on the clever choice of the elements which are objects of the humorous apparatus. In order to help everyone participate in the show without the feeling of being excluded by culturally and linguistically connoted skits, the show's producer Anil Gupta, in fact, wanted some 'Anglo-Saxon friendly jokes', that is 'jokes that white people would understand' or as he defined them, 'entry-level sketches' (*The Guardian*: Feb. 20, 1999). This mechanism implies a double level of understanding for the humorous message: a first level, defined as *entry level*, which is accessible to everyone; a second level, defined as *diasporic humour*[5], which is based on incongruities that only those who possess the necessary cross-cultural knowledge can resolve.

Given the hybrid representation of alterity in *GGM*, an empirical study was carried out in February 2005 on the different perception of

[5] The characterization of diasporic humour is discussed in more details by Balirano (2005), Balirano and Corduas (2006).

humour on behalf of the composite English society. The survey involved a sample of 95 subjects stratified according to gender (about 50% males) and ethnic origin (35% Indians immigrated to the UK, 37% British Asians born in the UK with both parents of Indian origin, 28% white English people born in England of English ancestors).

The questionnaire was primarily aimed at collecting information on the preferences and evaluations of humorous elements in some of *GGM's* sketches selected from the corpus as representatives of the main humorous mechanism. For the interpretation of the related scripts, three communicative modes have been considered: words, sound and images.

The specific sketches were chosen for the following factors:

i) the immediateness of the humorous message, which needed to be conveyed both via 'verbally expressed humour' and 'semiotically expressed humour'[6];

ii) the presence of the two different levels of humour (entry level sketch and diasporic humour);

iii) the typical stereotype on the pretentiousness/acceptance of being English on behalf of the Anglo-Indian community.

The subjects were interviewed individually or in small groups in order to avoid any form of interfering interactions, and furthermore they were not allowed to exchange any kind of information during the experiment. The experiment consisted in watching three short video-clips[7] from the first series of *GGM*, followed by the subject's immediate response to questions about their preference or evaluation on some humorous items of the sketch and the related degree of appreciation.

[6] See Balirano (2005) for a discussion.

[7] The first sketch 'Jodhpur station' is a remake of a famous British movie 'Brief Encounters' by David Lean. Some elements of the humorous mechanism are the following:

i) the actors are Indians but behave like the original actors Trevor Howard and Celia Johnson; ii) the setting is similar to that of Lean's movie but it is located at 'Jodhpur Station' instead of 'Milton Keynes junction'; iii) the sketch shows two lovers saying goodbye and the continuous interruptions of typical Indian characters (sellers, beggars and so on).

The second sketch 'Jonathan and the Board of Directors' relies on the improbable situation of a white British man who is employed by an Indian firm and the difficulties that he has when called by his British name (Jonathan) in place of an easier Indian version of it.

The third sketch, 'The Kapoors', is about two Indian couples who behave like real English people and try to hide their true ethnic origins.

3.1 A characterization of humour appreciation

In order to assess if the degree of humour appreciation expressed by the interviewees depends on some external factor, such as ethnic origin, we will consider a statistical model, namely MUB, which has proved to be effective in discriminating among preferences or evaluations of different groups of subjects (D'Elia and Piccolo, 2005; Piccolo, 2006).

The MUB model defines a theoretical probability distribution which can be fitted to ranks or score data collected by a survey. The preference or score that a subject expresses describes a random variable R such that:

$$P(R=r)=\pi\binom{m-1}{r-1}\xi^{m-r}(1-\xi)^{r-1}+(1-\pi)\frac{1}{m}; \qquad r=1,2,\ldots,m,$$

where $\xi \in [0, 1]$, $\pi \in [0, 1]$ and m is the highest point that can be attributed to the item under judgment.

For a given m, the random variable $R \sim MUB(\pi,\xi)$ is a **M**ixture of a **U**niform and a (shifted) **B**inomial distribution. The parameter π determines the role of *uncertainty* in the final judgment: the lower is the weight $(1-\pi)$ the smaller is the contribution of the Uniform distribution in the mixture. On the other hand, the parameter ξ characterizes the shifted Binomial distribution and, therefore, it denotes the *selectiveness* that is the attitude of the respondent to give a sharp and well defined opinion. Note that, in general, a low value of ξ corresponds to shifted Binomial distributions concentrated around high scores. In this respect the value of $(1-\xi)$ helps discriminate between the overall degree of enjoyment that the respondents attribute to a humorous item whereas $(1-\pi)$ indicates the degree of uncertainty of respondents.

The influence of external factors in the final judgement is included in the model adding two relations which relate the model parameters to significant covariates by means of a logistic link function:

$$\pi \mid \mathbf{y}_i = \frac{1}{1+e^{-\mathbf{y}_i\boldsymbol{\beta}}}; \qquad \xi \mid \mathbf{w}_i = \frac{1}{1+e^{-\mathbf{w}_i\boldsymbol{\gamma}}}$$

where $\boldsymbol{\beta}=(\beta_0, \beta_1,\ldots,\beta_p)'$, $\boldsymbol{\gamma}=(\gamma_0, \gamma_1,\ldots, \gamma_q)'$; $\mathbf{y}_j$ and $\mathbf{w}_j$ are row vectors which contain the constant and the covariates concerning the *i-th* subject and related to π and ξ, respectively. The covariate sets for the two parameters may fully or in part coincide.

Table 2. Diasporic humour

Items	$(1-\hat{\pi})$	$(1-\hat{\xi})\,\vert\mathbf{G_1}$	$(1-\hat{\xi})\,\vert\mathbf{G_2}$	$(1-\hat{\xi})\,\vert\mathbf{G_3}$	*Log-likelihood*
The couple's dialogue	0.266	0.229	0.354	0.429	–135.437
The secondary characters' accent	0.157	0.736	0.371	0.270	–127.998
The canned laughter	0.075	0.560	0.415	0.771	–132.231
The couple's perfect English accent	0.065	0.939	0.825	0.716	–105.432
The employee is a white Anglo-Saxon man	0.059	0.964	0.824	0.759	–92.825
The Indian couple dressed as a European couple	0.051	0.928	0.851	0.731	–97.735
The title of the sketch: "Jodhpur station"	0.038	0.216	0.496	0.820	–120.054
The setting of the firm in India	0.001	0.667	0.571	0.864	–113.097
David Lean's film	0.001	0.684	0.142	0.098	–95.346

Legenda: $\mathbf{G_1}$= *Anglo-Saxons*; $\mathbf{G_2}$= *Brit-Asians;* $\mathbf{G_3}$= *Indians*.

In Table 2, we report the estimated weights, $(1-\hat{\pi})$ and $(1-\hat{\xi})$, from the MUB models, for the judgments expressed by interviewees on

some items of the selected sketches[8]. The parameter ξ has been related to the ethnic origins of the respondents (Anglo-Saxons, Indians, Brit-Asians) by means of two dummy variables and a constant term. Moreover, as a measure of goodness of fit, the log-likelihood function at maximum is reported.

The degree of uncertainty of respondents, $(1-\hat{\pi})$, is generally small ranging from 0.001 to 0.266, but it is interesting to remark that the interviewees are more uncertain in evaluating items that are related to the text ("dialogue", "accent") or sounds ("canned laughter") than in expressing their judgment on items related to images or visual devices ("the title", "the dresses", "the setting", etc.). This fact could be a consequence of different media on the perception of humour. Although the questions were asked immediately after the interviewees had watched a single video clip, the process of remembering seems to be more effective for visual humour. Also, people tend to recall jokes which provoke most mirth (Chapman, 1973; Leventhal and Mace, 1970; Young and Frye, 1966) and probably this fact differentiates the uncertainty that they express in their ratings.

Moreover, in most of the models the estimates of the selectiveness parameter ξ appear to be graduated according to the ethnic origins and for many items the distribution of the scores given by Brit-Asians tends to collocate between the distribution of Indians and that of Anglo-Saxons.

This consideration confirms the existence of a special category of humour, diasporic humour, which is characterized by script oppositions that can be resolved only by people who possess the necessary cross-cultural knowledge to understand the intrinsic incongruity (see, Balirano and Corduas, 2006, for further discussion). In this respect, Brit-Asians constitute a hybrid group which is capable of drawing information from both worlds, the British and the Indian culture. They are, therefore, able to understand a type of humour which remains either less understandable or even inaccessible to one of the other ethnic groups.

[8] For reasons of space, we have not reported the estimates of the γ parameters. However, both π and γ parameters estimates were significant at the 5% level according to the asymptotic Wald test.

The humorous items which are accessible to everyone (the entry level) receive in general very positive ratings. Therefore, the empirical distributions show very similar patterns with a remarkable negative asymmetry and frequency mass concentrated around the highest scores (4 and 5). The MUB model for these kind of items does not include any explanatory variable for the uncertainty and selectiveness parameters.

In the following table, we illustrate some results obtained by fitting the MUB model to some humorous items of the three sketches under investigation. The estimated parameters are all significant.

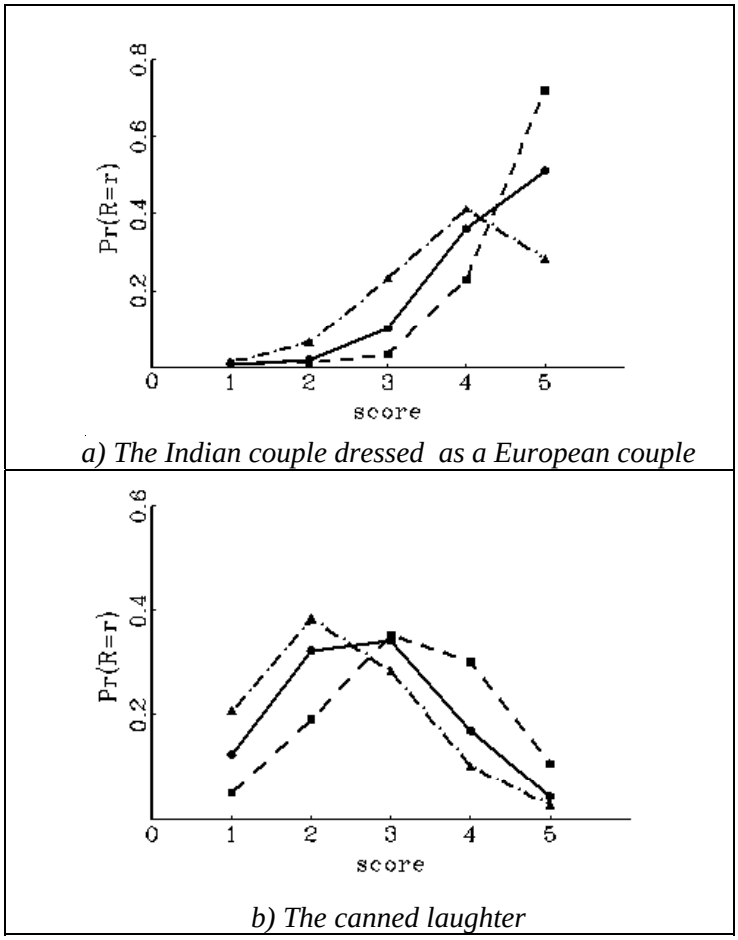
It is noteworthy that uncertainty, measured by $(1-\hat{\pi})$, is very low. This confirms that such humorous elements can be easily understood and recalled from memory since they provoke great mirth. Moreover, the degree of enjoyment measured by $(1-\hat{\xi})$ is rather high, ranging from 0.738 to 0.840.

Table 3. Entry level humour

Items	$(1-\hat{\pi})$	$(1-\hat{\xi})$	*log-likelihood*
The interruptions by many characters in the dialogue (Jodhpur)	0.001	0.840	–97.554
The leading actors' British clothes (Jodhpur)	0.014	0.812	–109.360
The comic exchanges (Jonathan)	0.041	0.738	–104.560
The actors interpretations (Jonathan)	0.001	0.792	–112.486
The final part of the sketch (Kapoors)	0.023	0.769	–116.661
The actors expressions (Kapoors)	0.001	0.779	–109.443

In Figure 3 we illustrate the two types of humour by reporting the estimated MUB probability distribution of some items. In particular, Figure 3.a refers to a visual humorous item, "*The Indian couple dressed*

as a European couple", and Figure 3.b to a sound effect, *"The canned laughter"*, which is a device commonly used with the sound track in order to stimulate laughter.



a) The Indian couple dressed as a European couple

b) The canned laughter

Figure 3. Probability distribution from MUB models
(Anglo-Saxons: ■; Indians: ▲; Brit-Asians: ●)

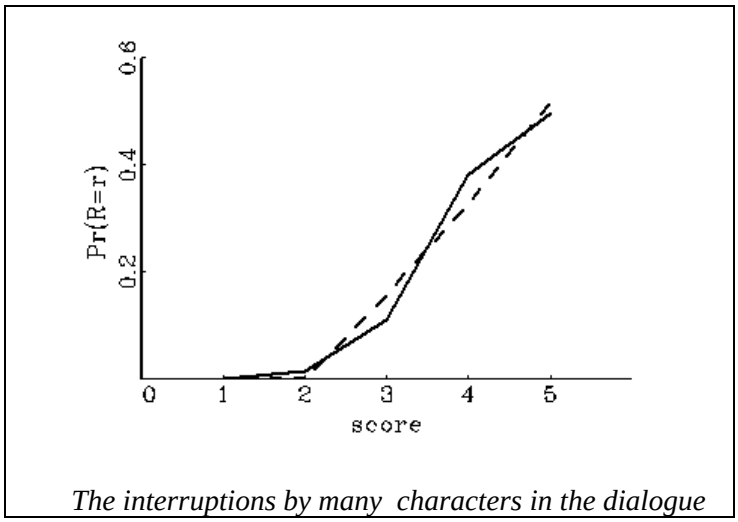


Figure 4. Probability distribution from MUB model

(Empirical distribution: --- Probability distribution: —)

The different effects of the humorous instances on the audience are clearly depicted by the different patterns of MUB distribution shown in the graphs. The entry level humour (Figure 4) is very straight and simple (generally, it refers to situations, mimicry, gestures, final punch lines, etc.), therefore, it is well recognized by viewers and raises the unanimous appreciation of the audience. On the other hand, diasporic humour (Figure 3.a) is more profound, it requires a more intense inferential process in order to link opposing scripts which cause laughter. This increased complexity in the resolution of the incongruities is reflected in the appreciation of humour which becomes more related to the individual and to his/her personal story. The latter is summarized by the variables which represent the ethnic origins. Finally, Figure 3.b enhances how a device, very common in British TV comedies, is perceived in different ways by the three ethnic groups: Anglo-Saxons, in fact, find canned laughter much more enjoyable than Indians and Brit-Asians and, again, the latter collocates in an intermediate position between the other groups.

3.2 GGM and Brit-Asian identity

A further characterization of humour appreciation by different ethnic groups can be obtained by means of a standard technique for multivariate data. In particular, the non-metric Multidimensional Scaling has been applied to construct a two dimensional map representing the dissimilarity among the judgments that the respondents expressed with reference to 11 items of the sketch 'Jodhpur station' (see Figure 5). This sketch is particularly interesting since part of the humorous stances present more than one level of interpretation being related to the knowledge that only Indians (or British) possess.

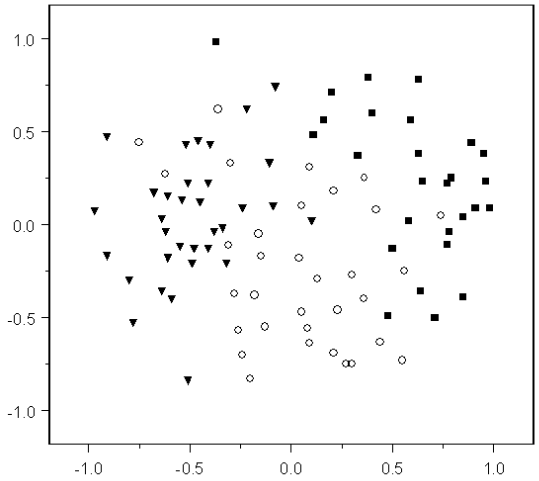


Figure 5. Multidimensional Scaling: "Jodhpur Station"
(Anglo-Saxons: ■; Indians: ▲; Brit-Asians: **O**)

The MDS representation retains 92% of the information of the original data. The first axis is related to the overall degree of appreciation of the sketch; the second axis expresses the ethnic origins of the respondents. The disposition of the subjects in the graph,

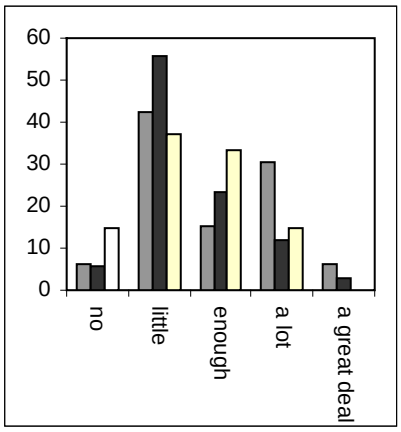
highlighted by three different symbols, indicate the actual gradual position of the three ethnic groups with reference to the ways they perceive humour. The Brit-Asians occupy an intermediate position in the graph. This fact is probably a consequence of the slow multicultural assimilating process of the Brit-Asians to the British life style which allows them to understand, although not completely, the type of humour related to British values and attitudes.

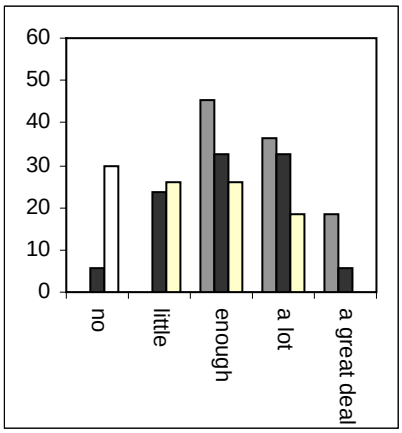
This result suggests some further consideration on the process of assimilation which seems to involve the younger Brit-Asian generations. As a matter of fact, the idea of assimilation of the second, and third generation of minority ethnic groups in the dominant culture conflicts with the growing importance of cultural pluralism. The assimilation does not necessarily mean conformity to the mainstream values in all social and cultural areas. *GGM* seems to respond to this need of a clear identity as do many other media products (novels, films, TV shows and plays). It is a part of the process, presently promoted by South Asians living in Britain, aimed at creating a new public sphere which could be positively perceived by the British. This image is also constructed through humorous discourse which satirizes the conservatism of the first Asian immigrant generation and highlights the problems related to cultural hybridity, the intergeneration conflict and family politics (Werbner, 2004).

In this respect, *GGM* may have a role in the construction of a post-national identity and in the production of a hybrid popular culture. In order to verify this stance, the respondents were asked, in the final part of the questionnaire, to express their opinions on the relevance *GGM* may have in providing Indians with a social instrument, giving them a voice 'to speak for themselves'. Although the results of the survey can be interpreted only as indicating a current trend in the opinions of the interviewees, the conclusions seem to be of some interest.

Most of the interviewees express quite a positive judgment on the fact that *GGM* gives them a voice through mainstream TV representation, even though the Indian respondents seem more confident compared to the other two groups. In particular, 75% of Indians strongly support that *GGM*'s ethnic representational value is possibly true, against 50% of Brit-Asians and almost 30% of Anglo-Saxons.

However, the solid belief in the usefulness of *GGM* seems to be weaker when the interviewees are asked to give an opinion on the importance of the TV programme as a means of drawing attention to power differences in British society. *GGM* is not universally recognized as a TV product capable of attracting its viewers' attention to power differences (Figure 6.a); 62% of Brit-Asians and almost half of the Indians and Anglo-Saxons cannot see any effective form of benefit from the sketch show or just a moderate influence.





(Legenda - Anglo-Saxons: white; Indians: grey; British Asians: black)

Figure 6.a
GGM *may help to draw attention to power differences in Great Britain*

Figure 6.b
GGM *may help to reduce the anxiety in the relocation of Indian immigrants abroad*

Note that 40% of Indian respondents do attribute a rather positive evaluation to the possibility that *GGM* may influence, somehow, the perception of unbalanced power between groups. This attitude is probably due to the fact that first Indian immigrants, as a minority group, may more easily recognize the problems related to a non-partial sharing of power in the UK and they are also more capable of appreciating the importance of *GGM* as an instrument which draws attention to such a problem with a humorous formula.

Finally, humour is a means of releasing tension and anxiety. In this respect, the themes that *GGM* develops may help eliminate anxiety in the relocation of Indian immigrants abroad. Indians and partly Brit-Asians recognize the possibility that such a kind of humour may help. However, 55% of Anglo-Saxons strongly disagree, only 18% of them give a rather positive judgement and none of them selects the highest available score (a great deal).

4. Concluding remarks

GGM is a multi-faceted TV product which can be interpreted at several levels depending on the use of language and images for humorous purposes, but also on the underlying social message that it attempts to convey. The analysis that we have proposed follows these two broad lines of investigation. We have shown how alternative statistical tools can help summarize the main aspects of the TV show. In particular, *GGM* reveals the existence of a different kind of humour, diasporic humour, and the programme suggests the possibility of a shared space where multiculturalism co-inhabitancy is still a feasible prospect.

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