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Deciphering Emoticons for Text Analytics: A Macro-Based Approach
Chad Atkinson, Sinclair Community College, Dayton OH[1]

Abstract

Emoticons, initialisms, and acronyms present a challenge to text analytics because they convey important information that may evade routine processing. The difference between: `"this was a great class :)"` and `"ZOMG that was the best class ever :-7"` may be significant. The approach developed herein converts the emoticon, acronym, or initialism to text that can be parsed by SAS® Enterprise Miner or SAS® Sentiment Analysis Studio and then analyzed. The result is a SAS® macro, emoticon, which is designed to process text prior to text or sentiment analysis.

Introduction

The increasing popularity of text-based communication in social media (Facebook, Twitter, etc.) has led to an explosion of unstructured data and a corresponding surge of interest in methods that can be used to extract useful insights from this information. At the same time, there is a growing focus on the empirical assessment of education,[2] and this has led to increasing efforts to obtain intelligence from all of the unstructured data that is generated by social media and surveys. One peculiarity of the data that is generated around higher education is the frequency with which emoticons and different abbreviations are used by students. In a recent Sinclair Community College survey about tutoring services, emoticons were used in more than 3% of the responses; in some cases, the emoticons were the entirety of the student's response[3]. The SAS macro emoticon was designed to capture this information.

There are two broad classes of non-word items that commonly appear in textual data: emoticons and abbreviations. Emoticons, a set of characters that are meant to represent an image, are typically interpreted as what the user is physically doing as they write the text. Acronyms and initialisms[4] are used to abbreviate a word or series of words. The problem with removing these items is that they provide either context that is not implied by the surrounding text (emoticons) or complete the message (acronyms and initialisms). Rather than identifying or tagging each item as being either positive or negative in sentiment, the macro replaces it with text that can then be processed by text analytics or sentiment analysis.

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[2] No Child Left Behind, which focuses on students' test scores as a metric of success for primary and secondary education, and efforts to tie state funding to graduation rates in higher education are clear signals that 'outcome-based' education has reached policy relevance.

[3] Some may consider it ironic that the survey was assessing students' satisfaction with the college writing center.

[4] Acronyms and initialisms are both formed by aggregating the first letter of multiple words. Acronyms are pronounced as if they were words (e.g. scuba), while each letter is spoken in an initialism (e.g. CIA). The character limit in Twitter encourages the use of such abbreviations.

Data

Open ended survey questions (as well as Twitter and Facebook) generate a significant amount of unstructured textual data. At Sinclair, there has been a conscious effort to move beyond the anecdotal analysis of survey responses to a more systematic consideration of the responses that we collect from student surveys. The ability of the text analysis node in SAS Enterprise Miner to intuit topics is especially useful in this regard—when we ask students if there is anything that we can do to improve a service or program that we offer, topics allow us to see if there are clusters/nuggets that can be gleaned from the mass of responses.

One issue that has quickly emerged is the ubiquity of non-word (i.e. emoticons and abbreviations) items that exist within the collected data. A sample of such comments, altered to preserve anonymity, is listed below:

```
We went through everything very quickly and I feel like I'm ready to
make changes to my paper. :)
your awesome!!
the tutor was very helpful =]
I am very pleased with my tutors help!
the help was pretty basic
she was very helpful.
Love working with her (:
W****** was excellent to work with and very helpful.
```

In this case, the emoticon is probably most informative in the first case. The rapid pace of the review is not necessarily a positive thing, but the fact that the student seems to be prepared to make changes seems to suggest that this is a positive outcome. The "smiley" removes much of the ambiguity or ambivalence that could be found within this comment. In this case, the interpretation that the respondent is smiling as they enter this response is a clear signal that they are pleased with the service.

Method

Two approaches were considered to convert the emoticon ":)" to "smile." Perl could be used to identify the patterns that characterize emoticons and replace them with the appropriate text. Alternatively, SAS functions could be used to directly replace certain strings with their corresponding definitions. Ultimately the second approach was chosen to implement emoticon.

Perl regular expressions could be used to define a set of patterns (i.e. "eyes" and "mouths") as in the code fragment below:

```
If _n_ = 1 then pattern=prxparse("s/[:;-]+[\]\)D]/smile/")⁵;
retain pattern;
call prxchange(pattern,-1,comment,translated_comment);
```

This approach identifies and replaces smile emoticons well enough, but there are some cases where emoticons do not really possess an "eye" and "mouth" position (e.g. `o/\o` or `°O°`). This could be managed with a different type of pattern, but this highlighted the necessity of developing one perl expression for each emoticon—smile, frown, wink, etc… The deciding factor for adopting a macro-based approach was the need to translate abbreviations and initialisms, which are one to one translations rather than a many (various smile emoticons) to one translation (smile). This led to the development of a less elegant approach where each emoticon or abbreviation would be replaced with equivalent text.

The macro-based substitution approach relies on the repeated use of the tranwrd function. To implement this solution, a list of common emoticons and abbreviations was obtained and matched with their textual counterparts. Wikipedia was used to identify a list of emoticons and www.txtDrop.com/abbreviations.php was used to define a list of abbreviations. These items were then imported into Excel, where the relevant SAS code could be inserted around these items[6] and their corresponding definitions. In the table below, the emoticons are in the second column and the definition is in the fourth column. Fill down was used to replicate the needed SAS code across hundreds of rows.

Table 1 Sample Excel Worksheet for Code Generation

`comment=tranwrd(comment, "`	`:)`	`" , "`	`smile`	`");`
	`:o)`		`smile`	
	`:]`		`smile`	

One significant complication is the matter of spacing around each emoticon. The text string that is used to replace the emoticon must be padded with leading and trailing blanks to delineate the inserted text (i.e. the definition) from the rest of the text string; otherwise the replacement can lead to words being inadvertently concatenated which will complicate text analytics or sentiment analysis. For example, if the text being analyzed were `"I liked the class :) the instructor knew her stuff,"` then the string 'blank-colon-left parenthesis-blank' needs to be replaced with 'blank-smile-blank.' Absent such padding around the word smile, the replacement would be `"I liked the classsmilethe instructor knew her stuff,"` which causes as many problems as it solves.

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[5] A quick perl translation: the following code `prxparse("s/expression/value/")` is effectively one step in a find and replace routine that replaces 'expression' with 'value.' The characters that can form the emoticon's "eyes" are identified in the first set of brackets `[:;-]` and the "mouth" characters are identified with the second set of brackets `[\]\)D]`. (The backslashes are 'escape characters' which identify each of the right parentheses as text, rather than metacharacters/programming elements.) The '+' between the brackets is interpreted as 'find the previous set of characters one or more times.' So, the code looks for one or more 'eye' characters, followed by a 'mouth' character. If that pattern is found, the prxchange function replaces all instances (-1) of this pattern with 'smile' in the target variable (comment) and saves it in a new variable (translated_comment).

[6] If the smart quote option is not turned off, the text that is generated in Excel will not function properly in SAS. SAS accepts "string" but does not accept "string".

From SAS Code to SAS Macro Code[7]

The steps outlined above generate 150 lines of text to process emoticons and 373 lines that process abbreviations. In each case the non-word item is replaced with its equivalent text that can then be analyzed with SAS® Text Analytics or SAS® Sentiment Analysis. Given the number of lines of code that are involved, it is much easier to wrap it up in a simple macro.

The macro, emoticon, has two arguments that must be supplied when it is called: *comment* and *set*. *Comment* is the name of the variable that contains the unstructured textual data and *set* is the name of the dataset that contains the variable *comment*. Once these two parameters are provided, the macro will open the data identified with *set* and take the variable *comment* and replace the non-word elements with their corresponding definitions. Once these replacements have taken place, the data set is saved with the prefix transformed_ added to the name of the dataset that was identified in *set*. All of these steps are accomplished with the following code:

```
%macro emoticon (comment=, set=); /*macro 'emoticon' has two parameters*/
data work.transformed_&set.; /*save results with transformed_ prefix*/
set &set.; /*use data defined with set parameter*/
```

The tranwrd functions follow, with the parameter *comment* being used to identify the item that must be translated. Note the leading and trailing blank that surround the word smile. The emoticon is not padded: it can appear at the beginning or end of a sentence, and these characters are rarely (if ever) a part of a larger word.

```
&comment.=tranwrd(&comment., ">:]" , " smile ");
```

The syntax for abbreviations is virtually identical. The only difference is that the abbreviation is padded with blanks[8], as there are cases where abbreviations (cu ['see you'], br ['best regards'], gol [giggling out loud']) can be part of a larger word (cure, bring, gold).

```
&comment.=tranwrd(&comment.," H8 " ," Hate ");
```

Once all of the tranwrd functions are listed, the macro concludes with run and mend statements.

Sample Results

When this macro was applied to a set of 516 open ended student comments about tutoring services, there were 15 emoticons that were identified (≈3%).

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[7] The macro code is included in its entirety as an appendix.
[8] If this treatment does not capture enough of the abbreviations in the unstructured data, a second pass could be made without the padding of the abbreviation.

Table 2 Comments Before and After Running *Emoticon*

Comment	Comment after *Emoticon*
We went through everything very quickly and I feel like I'm ready to make changes to my paper. :)	We went through everything very quickly and I feel like I'm ready to make changes to my paper. smile
the tutor was very helpful =]	the tutor was very helpful smile
Thanks for the help:)	Thanks for the help smile
Thank you so much B*****:)	Thank you so much B***** smile
She was so amazing and helped me out alot. Thanks B***** :)	She was so amazing and helped me out alot. Thanks Brenda smile
She was a great help!!! She is so patient. God Bless N***** B****!! :)	She was a great help!!! She is so patient. God Bless N***** B****!! smile
L****** was a great help as always:)	L******was a great help as always smile
It is so hard to have a good grammar in English. Sometimes people help us with it, and i feel kind of that understand but still everytime i write there are a lot of mistakes. :(	It is so hard to have a good grammar in English. Sometimes people help us with it, and i feel kind of that understand but still everytime i write there are a lot of mistakes. sad
he was a very nice guy and helped a lot thanks so much!!;]	he was a very nice guy and helped a lot thanks so much!! wink
Have a great day. :-)	Have a great day. smile
Friendly =)	Friendly smile
All the help I received was extremely helpful and I will definitely come back for future paper reviews :)	All the help I received was extremely helpful and I will definitely come back for future paper reviews smile
All my questions were answered and i feel that i will do well on my paper :) thank you writing center and ms B*****	All my questions were answered and i feel that i will do well on my paper smile thank you writing center and ms B*****
;)	wink
:)	smile

In this case, the first comment and the last two comments are noticeably improved by the translation. The last two open-ended survey comments are now readable, while the first comment has some additional context that helps form a more positive sentiment from a comment that was otherwise rather neutral.

Conclusion

The ubiquity of non-word items in unstructured textual data and their ability to add context or information require that they be included in any meaningful analysis. Once the translation approach was selected, a list of common emoticons and abbreviations were identified and their corresponding meanings were encoded in a SAS macro. The result is able to take non-word items and replace them with their definitions, which can then be analyzed with SAS® Text Analytics or SAS® Sentiment Analysis Studio.

One problem that that this approach does not overcome is the issue that emerges when emoticons are replaced with images[9] by whatever tool captures the data. Just as Microsoft Word tries to convert :) to ☺, there are some electronic data sources that convert :) to 🙂. In such cases this macro cannot make the necessary translation. Fortunately for Sinclair, our tools that collect student surveys do not make such automatic replacements, but many other sources of unstructured data do have this feature.

Contact Information
Chad Atkinson
Sinclair Community College
chad.atkinson4026@sinclair.edu

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[9] Thanks to Arthur Tabachneck for identifying this issue.

Appendix 1 SAS Code

```sas
/*
emoticon: a macro to replace common emoticons, acronyms, and initialisms with
text.  It is designed to process text comments prior to text/sentiment
analysis.

To call the macro:
%emoticon(comment=name_of_character_variable_containing_comments,
set= name_of_dataset_containing_comments);
*/

%macro emoticon (comment=, set=);
data work.transformed_&set.;
set &set.;
/*emoticons, replacement with leading and trailing blanks*/
&comment.=tranwrd(&comment., ">:]", " smile ");
&comment.=tranwrd(&comment., "(-:", " smile ");
&comment.=tranwrd(&comment., ":-)", " smile ");
&comment.=tranwrd(&comment., ":)", " smile ");
&comment.=tranwrd(&comment., ":o)", " smile ");
&comment.=tranwrd(&comment., ":]", " smile ");
&comment.=tranwrd(&comment., ":3", " smile ");
&comment.=tranwrd(&comment., ":c)", " smile ");
&comment.=tranwrd(&comment., ":>", " smile ");
&comment.=tranwrd(&comment., "=]", " smile ");
&comment.=tranwrd(&comment., "8)", " smile ");
&comment.=tranwrd(&comment., "=)", " smile ");
&comment.=tranwrd(&comment., ":}", " smile ");
&comment.=tranwrd(&comment., ":^)", " smile ");
&comment.=tranwrd(&comment., ":-)=", " smile ");
&comment.=tranwrd(&comment., "#:-)", " smile ");
&comment.=tranwrd(&comment., ":-)8", " smile ");
&comment.=tranwrd(&comment., "d:-)", " smile ");
&comment.=tranwrd(&comment., "&:-)", " smile ");
&comment.=tranwrd(&comment., "8-)", " smile ");
&comment.=tranwrd(&comment., "{:-)", " smile ");
&comment.=tranwrd(&comment., "(:-)", " smile ");
&comment.=tranwrd(&comment., ":-( )", " smile ");
&comment.=tranwrd(&comment., "C|:-)", " smile ");
&comment.=tranwrd(&comment., "[:-)", " smile ");
&comment.=tranwrd(&comment., ">:D", " laugh ");
&comment.=tranwrd(&comment., ":-D", " laugh ");
&comment.=tranwrd(&comment., ":D", " laugh ");
&comment.=tranwrd(&comment., "8-D", " laugh ");
&comment.=tranwrd(&comment., "8D", " laugh ");
&comment.=tranwrd(&comment., "x-D", " laugh ");
&comment.=tranwrd(&comment., "xD", " laugh ");
&comment.=tranwrd(&comment., "X-D", " laugh ");
&comment.=tranwrd(&comment., "XD", " laugh ");
&comment.=tranwrd(&comment., "=-D", " laugh ");
&comment.=tranwrd(&comment., "=D", " laugh ");
&comment.=tranwrd(&comment., "=-3", " laugh ");
&comment.=tranwrd(&comment., "=3", " laugh ");
&comment.=tranwrd(&comment., "B^D", " laugh ");
&comment.=tranwrd(&comment., ":-))", " happy ");
&comment.=tranwrd(&comment., ">:[", " sad ");
&comment.=tranwrd(&comment., ":-(", " sad ");
&comment.=tranwrd(&comment., ":(", " sad ");
&comment.=tranwrd(&comment., ":-c", " sad ");
&comment.=tranwrd(&comment., ":c", " sad ");
&comment.=tranwrd(&comment., ":-<", " sad ");
```

```
&comment.=tranwrd(&comment., ":<", " sad ");
&comment.=tranwrd(&comment., ":-[", " sad ");
&comment.=tranwrd(&comment., ":[", " sad ");
&comment.=tranwrd(&comment., ":{", " sad ");
&comment.=tranwrd(&comment., ":-||", " angry ");
&comment.=tranwrd(&comment., ":@", " angry ");
&comment.=tranwrd(&comment., ">:-(", " angry ");
&comment.=tranwrd(&comment., "QQ", " crying ");
&comment.=tranwrd(&comment., "D:<", " disgust or sadness ");
&comment.=tranwrd(&comment., "D:", " disgust or sadness ");
&comment.=tranwrd(&comment., "D8", " disgust or sadness ");
&comment.=tranwrd(&comment., "D;", " disgust or sadness ");
&comment.=tranwrd(&comment., "D=", " disgust or sadness ");
&comment.=tranwrd(&comment., "DX", " disgust or sadness ");
&comment.=tranwrd(&comment., "v.v", " disgust or sadness ");
&comment.=tranwrd(&comment., ">:o", " surprise ");
&comment.=tranwrd(&comment., ">:O", " surprise ");
&comment.=tranwrd(&comment., ":-O", " surprise ");
&comment.=tranwrd(&comment., ":O", " surprise ");
&comment.=tranwrd(&comment., "°o°", " surprise ");
&comment.=tranwrd(&comment., "°O°", " surprise ");
&comment.=tranwrd(&comment., ":O", " surprise ");
&comment.=tranwrd(&comment., "o_O", " surprise ");
&comment.=tranwrd(&comment., "o_0", " surprise ");
&comment.=tranwrd(&comment., "o.O", " surprise ");
&comment.=tranwrd(&comment., "8-0", " surprise ");
&comment.=tranwrd(&comment., ":-<>", " surprise ");
&comment.=tranwrd(&comment., ":*", " kiss ");
&comment.=tranwrd(&comment., ":^*", " kiss ");
&comment.=tranwrd(&comment., ">;]", " wink ");
&comment.=tranwrd(&comment., ";-)", " wink ");
&comment.=tranwrd(&comment., ";)", " wink ");
&comment.=tranwrd(&comment., "*-)", " wink ");
&comment.=tranwrd(&comment., "*)", " wink ");
&comment.=tranwrd(&comment., ";-]", " wink ");
&comment.=tranwrd(&comment., ";]", " wink ");
&comment.=tranwrd(&comment., ";D", " wink ");
&comment.=tranwrd(&comment., ";^)", " wink ");
&comment.=tranwrd(&comment., ":-,", " wink ");
&comment.=tranwrd(&comment., ">:P", " playfully sticking out tongue ");
&comment.=tranwrd(&comment., ":-P", " playfully sticking out tongue ");
&comment.=tranwrd(&comment., ":P", " playfully sticking out tongue ");
&comment.=tranwrd(&comment., "X-P", " playfully sticking out tongue ");
&comment.=tranwrd(&comment., "x-p", " playfully sticking out tongue ");
&comment.=tranwrd(&comment., ":-p", " playfully sticking out tongue ");
&comment.=tranwrd(&comment., ":p", " playfully sticking out tongue ");
&comment.=tranwrd(&comment., "=p", " playfully sticking out tongue ");
&comment.=tranwrd(&comment., ":-b", " playfully sticking out tongue ");
&comment.=tranwrd(&comment., ":b", " playfully sticking out tongue ");
&comment.=tranwrd(&comment., ":-7", " tongue in cheek or sarcasm ");
&comment.=tranwrd(&comment., ">:\", " annoyed ");
&comment.=tranwrd(&comment., ">:/", " annoyed ");
&comment.=tranwrd(&comment., ":-\", " annoyed ");
&comment.=tranwrd(&comment., ":-/", " annoyed ");
&comment.=tranwrd(&comment., ":-.", " annoyed ");
&comment.=tranwrd(&comment., ":/", " annoyed ");
&comment.=tranwrd(&comment., ":\", " annoyed ");
&comment.=tranwrd(&comment., "=/", " annoyed ");
&comment.=tranwrd(&comment., "=\", " annoyed ");
&comment.=tranwrd(&comment., ":S", " annoyed ");
&comment.=tranwrd(&comment., ">.<", " annoyed ");
&comment.=tranwrd(&comment., ":-|", " determined or straight face ");
&comment.=tranwrd(&comment., ":$", " embarrassed ");
```

```
&comment.=tranwrd(&comment., ">:X", " not speaking ");
&comment.=tranwrd(&comment., ":-X", " not speaking ");
&comment.=tranwrd(&comment., ":X", " not speaking ");
&comment.=tranwrd(&comment., "O:-)", " angel or innocent ");
&comment.=tranwrd(&comment., "0:-3", " angel or innocent ");
&comment.=tranwrd(&comment., "0:3", " angel or innocent ");
&comment.=tranwrd(&comment., "0:-)", " angel or innocent ");
&comment.=tranwrd(&comment., "0:)", " angel or innocent ");
&comment.=tranwrd(&comment., "0;^)", " angel or innocent ");
&comment.=tranwrd(&comment., ">:)", " evil ");
&comment.=tranwrd(&comment., ">;)", " evil ");
&comment.=tranwrd(&comment., ">:-)", " evil ");
&comment.=tranwrd(&comment., "}:-)", " devilish ");
&comment.=tranwrd(&comment., "}:)", " devilish ");
&comment.=tranwrd(&comment., "3:-)", " devilish ");
&comment.=tranwrd(&comment., "3:)", " devilish ");
&comment.=tranwrd(&comment., "o/\o", " high five ");
&comment.=tranwrd(&comment., "^5", " high five ");
&comment.=tranwrd(&comment., "|-O", " bored ");
&comment.=tranwrd(&comment., ":-&", " tongue tied ");
&comment.=tranwrd(&comment., ":&", " tongue tied ");
&comment.=tranwrd(&comment., "#-)", " confused ");
&comment.=tranwrd(&comment., "%-)", " confused ");
&comment.=tranwrd(&comment., "%)", " confused ");
&comment.=tranwrd(&comment., ":-###", " sick ");
&comment.=tranwrd(&comment., ":###", " sick ");
&comment.=tranwrd(&comment., "<:-|", " dunce ");
&comment.=tranwrd(&comment., "<*)))-{", " fish ");
&comment.=tranwrd(&comment., "><(((*>", " fish ");
&comment.=tranwrd(&comment., "><>", " fish ");
&comment.=tranwrd(&comment., "<3", " heart ");
&comment.=tranwrd(&comment., "</3", " broken heart ");
&comment.=tranwrd(&comment., ":-o zz", "bored ");
&comment.=tranwrd(&comment., ": @", " shouting ");
&comment.=tranwrd(&comment., ":-(0)", " shouting ");
&comment.=tranwrd(&comment., "(-.-)", " sleeping ");
&comment.=tranwrd(&comment., "|-I", " sleeping ");
&comment.=tranwrd(&comment., "|-O", " snoring ");
&comment.=tranwrd(&comment., ":-v" , " talking ");

/*abbreviations with leading and trailing blanks to prevent
replacing a portion of an existing word. */
&comment.=tranwrd(&comment.," @TEOTD " ," At the end of the day ");
&comment.=tranwrd(&comment.," 143 " ," I love you ");
&comment.=tranwrd(&comment.," 2G2BT " ," Too good to be true ");
&comment.=tranwrd(&comment.," 404 " ," I do not know ");
&comment.=tranwrd(&comment.," 4EAE " ," Forever and ever ");
&comment.=tranwrd(&comment.," A3 " ," Anytime, anywhere, anyplace ");
&comment.=tranwrd(&comment.," AAF " ," As a matter of fact ");
&comment.=tranwrd(&comment.," AAK " ," Asleep at keyboard ");
&comment.=tranwrd(&comment.," AAMOI " ," As a matter of interest ");
&comment.=tranwrd(&comment.," AAP " ," Always a pleasure ");
&comment.=tranwrd(&comment.," AAR " ," At any rate ");
&comment.=tranwrd(&comment.," AAS " ," Alive and smiling ");
&comment.=tranwrd(&comment.," ACK " ," Acknowledge ");
&comment.=tranwrd(&comment.," ADR " ," Address ");
&comment.=tranwrd(&comment.," AEAP " ," As early as possible ");
&comment.=tranwrd(&comment.," AFAIK " ," As far as I know ");
&comment.=tranwrd(&comment.," AFK " ," Away from keyboard ");
&comment.=tranwrd(&comment.," AFPOE " ," A fresh pair of eyes ");
&comment.=tranwrd(&comment.," AIGHT " ," Alright ");
&comment.=tranwrd(&comment.," AISB " ," As it should be ");
&comment.=tranwrd(&comment.," AKA " ," Also known as ");
```

```
&comment.=tranwrd(&comment.," ALCON " ," All concerned ");
&comment.=tranwrd(&comment.," AML " ," All my love ");
&comment.=tranwrd(&comment.," AOTA " ," All of the above ");
&comment.=tranwrd(&comment.," ASAP " ," As soon as possible ");
&comment.=tranwrd(&comment.," ATM " ," At the moment ");
&comment.=tranwrd(&comment.," AWOL " ," Away without leaving ");
&comment.=tranwrd(&comment.," AYEC " ," At your earliest convenience ");
&comment.=tranwrd(&comment.," AYOR " ," At your own risk ");
&comment.=tranwrd(&comment.," AYSOS " ," Are you stupid or something ");
&comment.=tranwrd(&comment.," AYTMTB " ," And you are telling me this because ");
&comment.=tranwrd(&comment.," B/F " ," Boyfriend ");
&comment.=tranwrd(&comment.," B4 " ," Before ");
&comment.=tranwrd(&comment.," B4N " ," Bye for now ");
&comment.=tranwrd(&comment.," BAK " ," Back at keyboard ");
&comment.=tranwrd(&comment.," BAU " ," Business as usual ");
&comment.=tranwrd(&comment.," BB " ," Be back ");
&comment.=tranwrd(&comment.," BBIAF " ," Be back in a few ");
&comment.=tranwrd(&comment.," BBIAM " ," Be back in a minute ");
&comment.=tranwrd(&comment.," BBIAS " ," Be back in a sec ");
&comment.=tranwrd(&comment.," BBL " ," Be back later ");
&comment.=tranwrd(&comment.," BBQ " ," Be back quickly ");
&comment.=tranwrd(&comment.," BBS " ," Be back soon ");
&comment.=tranwrd(&comment.," BBT " ," Be back tomorrow ");
&comment.=tranwrd(&comment.," BC " ," Because ");
&comment.=tranwrd(&comment.," BCNU " ," Be seeing you ");
&comment.=tranwrd(&comment.," BCOS " ," Because ");
&comment.=tranwrd(&comment.," BF " ," Best friend ");
&comment.=tranwrd(&comment.," BDN " ," Big damn number ");
&comment.=tranwrd(&comment.," BFN " ," Bye for now ");
&comment.=tranwrd(&comment.," BG " ," Big grin ");
&comment.=tranwrd(&comment.," BGWM " ," Be gentle with me ");
&comment.=tranwrd(&comment.," BIOYN " ," Blow it out your nose ");
&comment.=tranwrd(&comment.," BLNT " ," Better luck next time ");
&comment.=tranwrd(&comment.," BM&Y " ," Between me and you ");
&comment.=tranwrd(&comment.," BOL " ," Best of luck ");
&comment.=tranwrd(&comment.," BPLM " ," Big person little mind ");
&comment.=tranwrd(&comment.," BR " ," Best regards ");
&comment.=tranwrd(&comment.," BRB " ," Be right back ");
&comment.=tranwrd(&comment.," BRT " ," Be right there ");
&comment.=tranwrd(&comment.," BTA " ," But then again ");
&comment.=tranwrd(&comment.," BTDT " ," Been there, done that ");
&comment.=tranwrd(&comment.," BTW " ," By the way ");
&comment.=tranwrd(&comment.," CD9 " ," Parents are around ");
&comment.=tranwrd(&comment.," CHK " ," Check ");
&comment.=tranwrd(&comment.," CMIIW " ," Correct me if I am wrong ");
&comment.=tranwrd(&comment.," CMON " ," Come on ");
&comment.=tranwrd(&comment.," COB " ," Close of business ");
&comment.=tranwrd(&comment.," COS " ," Because ");
&comment.=tranwrd(&comment.," C/P " ," Cross post ");
&comment.=tranwrd(&comment.," CR8 " ," Create ");
&comment.=tranwrd(&comment.," CRB " ," Come right back ");
&comment.=tranwrd(&comment.," CRBT " ," Crying really big tears ");
&comment.=tranwrd(&comment.," CU " ," See you ");
&comment.=tranwrd(&comment.," CUA "," See you around ");
&comment.=tranwrd(&comment.," CUL "," See you later ");
&comment.=tranwrd(&comment.," CUL8R "," See you later ");
&comment.=tranwrd(&comment.," CWYL "," Chat with you later ");
&comment.=tranwrd(&comment.," CYA "," See ya ");
&comment.=tranwrd(&comment.," CYO "," See you online ");
&comment.=tranwrd(&comment.," D/L "," Download ");
&comment.=tranwrd(&comment.," DL " ," Download ");
&comment.=tranwrd(&comment.," DEGT " ," Do not even go there ");
&comment.=tranwrd(&comment.," DIKU " ," Do I know you? ");
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&comment.=tranwrd(&comment.," DQMOT " ," Do not quote me on this ");
&comment.=tranwrd(&comment.," DTS " ," Do not think so ");
&comment.=tranwrd(&comment.," DV8 " ," Deviate ");
&comment.=tranwrd(&comment.," DYK " ," Did you know ");
&comment.=tranwrd(&comment.," EBKAC " ," Error between keyboard and chair ");
&comment.=tranwrd(&comment.," EF4T " ," Effort ");
&comment.=tranwrd(&comment.," EG " ," Evil grin ");
&comment.=tranwrd(&comment.," EMA " ," E-mail address ");
&comment.=tranwrd(&comment.," EMFBI " ," Excuse me for butting in ");
&comment.=tranwrd(&comment.," EMSG " ," E-mail message ");
&comment.=tranwrd(&comment.," ENUF " ," Enough ");
&comment.=tranwrd(&comment.," EOD " ," End of day ");
&comment.=tranwrd(&comment.," EOM " ," End of message ");
&comment.=tranwrd(&comment.," EVA " ," Ever ");
&comment.=tranwrd(&comment.," EZY " ," Easy ");
&comment.=tranwrd(&comment.," F2F " ," Face to face ");
&comment.=tranwrd(&comment.," F2T " ," Free to talk ");
&comment.=tranwrd(&comment.," FBM " ," Fine by me ");
&comment.=tranwrd(&comment.," FC " ," Fingers crossed ");
&comment.=tranwrd(&comment.," FICCL " ," Frankly I could not care a less ");
&comment.=tranwrd(&comment.," FOMCL " ," Falling off my chair laughing ");
&comment.=tranwrd(&comment.," FITB " ," Fill in the blank ");
&comment.=tranwrd(&comment.," FRT " ," For real though ");
&comment.=tranwrd(&comment.," FWIW " ," For what it is worth ");
&comment.=tranwrd(&comment.," FYEO " ," For your eyes only ");
&comment.=tranwrd(&comment.," FYI " ," For your information ");
&comment.=tranwrd(&comment.," G " ," Grin ");
&comment.=tranwrd(&comment.," G/F " ," Girlfriend ");
&comment.=tranwrd(&comment.," G2CU " ," Good to see you ");
&comment.=tranwrd(&comment.," G2G " ," Got to go ");
&comment.=tranwrd(&comment.," G2R " ," Got to run ");
&comment.=tranwrd(&comment.," G9 " ," Genius ");
&comment.=tranwrd(&comment.," GA " ," Go ahead ");
&comment.=tranwrd(&comment.," GAL " ," Get a life ");
&comment.=tranwrd(&comment.," GB " ," Goodbye ");
&comment.=tranwrd(&comment.," GBU " ," God bless you ");
&comment.=tranwrd(&comment.," GDR " ," Grinning, ducking, and running ");
&comment.=tranwrd(&comment.," GD/R " ," Grinning, ducking, and running ");
&comment.=tranwrd(&comment.," GFI " ," Go for it ");
&comment.=tranwrd(&comment.," GG " ," Gotta Go or Good Game ");
&comment.=tranwrd(&comment.," GIAR " ," Give it a rest ");
&comment.=tranwrd(&comment.," GIGO " ," Garbage in, garbage out ");
&comment.=tranwrd(&comment.," GL " ," Good luck ");
&comment.=tranwrd(&comment.," GL/HF " ," Good luck, have fun ");
&comment.=tranwrd(&comment.," GLNG " ," Good luck next game ");
&comment.=tranwrd(&comment.," GMTA " ," Great minds think alike ");
&comment.=tranwrd(&comment.," GOI " ," Get over it ");
&comment.=tranwrd(&comment.," GOL " ," Giggling out loud ");
&comment.=tranwrd(&comment.," GR8 " ," Great ");
&comment.=tranwrd(&comment.," GR&D " ," Grinning, running and ducking ");
&comment.=tranwrd(&comment.," GT " ," Good try ");
&comment.=tranwrd(&comment.," GTG " ," Got to go ");
&comment.=tranwrd(&comment.," GTRM " ," Going to read mail ");
&comment.=tranwrd(&comment.," H&K " ," Hugs & kisses ");
&comment.=tranwrd(&comment.," H2CUS " ," Hope to see you soon ");
&comment.=tranwrd(&comment.," H8 " ," Hate ");
&comment.=tranwrd(&comment.," HAGN " ," Have a good night ");
&comment.=tranwrd(&comment.," HAGO " ," Have a good one ");
&comment.=tranwrd(&comment.," HF " ," Have fun ");
&comment.=tranwrd(&comment.," HHIS " ," Head hanging in shame ");
&comment.=tranwrd(&comment.," HOAS " ," Hold on a second ");
&comment.=tranwrd(&comment.," HRU " ," How are you? ");
&comment.=tranwrd(&comment.," HTH " ," Hope this helps ");
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&comment.=tranwrd(&comment.," HV " ," Have ");
&comment.=tranwrd(&comment.," IAC " ," In any case ");
&comment.=tranwrd(&comment.," IANAL " ," I am not a lawyer ");
&comment.=tranwrd(&comment.," IB " ," I am back ");
&comment.=tranwrd(&comment.," IC " ," I see ");
&comment.=tranwrd(&comment.," ICBW " ," It could be worse ");
&comment.=tranwrd(&comment.," IDK " ," I do not know ");
&comment.=tranwrd(&comment.," IDTS " ," I do not think so ");
&comment.=tranwrd(&comment.," IDUNNO " ," I do not know ");
&comment.=tranwrd(&comment.," IG2R " ," I got to run ");
&comment.=tranwrd(&comment.," IIRC " ," If I remember correctly ");
&comment.=tranwrd(&comment.," ILBL8 " ," I will be late ");
&comment.=tranwrd(&comment.," ILU " ," I love you ");
&comment.=tranwrd(&comment.," ILY " ," I love you ");
&comment.=tranwrd(&comment.," IM " ," Instant message ");
&comment.=tranwrd(&comment.," IMHO " ," In my humble opinion ");
&comment.=tranwrd(&comment.," IMNSHO " ," In my not so humble opinion ");
&comment.=tranwrd(&comment.," IMO " ," In my opinion ");
&comment.=tranwrd(&comment.," IMS " ," I am sorry ");
&comment.=tranwrd(&comment.," INAL " ," I am not a lawyer ");
&comment.=tranwrd(&comment.," IOW " ," In other words ");
&comment.=tranwrd(&comment.," IRL " ," In real life ");
&comment.=tranwrd(&comment.," IRMC " ," I rest my case ");
&comment.=tranwrd(&comment.," IUSS " ," If you say so ");
&comment.=tranwrd(&comment.," IYKWIM " ," If you know what I mean ");
&comment.=tranwrd(&comment.," IYO " ," In your opinion ");
&comment.=tranwrd(&comment.," IYSS " ," If you say so ");
&comment.=tranwrd(&comment.," j00r " ," Your ");
&comment.=tranwrd(&comment.," JAC " ," Just a sec ");
&comment.=tranwrd(&comment.," JIC " ," Just in case ");
&comment.=tranwrd(&comment.," JJA " ," Just joking around ");
&comment.=tranwrd(&comment.," JK " ," Just kidding ");
&comment.=tranwrd(&comment.," JMO " ," Just my opinion ");
&comment.=tranwrd(&comment.," JP " ," Just playing ");
&comment.=tranwrd(&comment.," K8T " ," Katie ");
&comment.=tranwrd(&comment.," k/b " ," Keyboard ");
&comment.=tranwrd(&comment.," KB " ," Keyboard ");
&comment.=tranwrd(&comment.," KIT " ," Keep in touch ");
&comment.=tranwrd(&comment.," KOC " ," Kiss on cheek ");
&comment.=tranwrd(&comment.," KOTC " ," Kiss on the cheek ");
&comment.=tranwrd(&comment.," KOTL " ," Kiss on the lips ");
&comment.=tranwrd(&comment.," KNIM " ," Know what I mean? ");
&comment.=tranwrd(&comment.," l33t " ," elite ");
&comment.=tranwrd(&comment.," L8R " ," Later ");
&comment.=tranwrd(&comment.," LD " ," Later, dude / Long distance ");
&comment.=tranwrd(&comment.," LERK " ," leaving easy reach of keyboard ");
&comment.=tranwrd(&comment.," LOL " ," Laughing out loud ");
&comment.=tranwrd(&comment.," LTM " ," Laugh to myself ");
&comment.=tranwrd(&comment.," LTNS " ," Long time no see ");
&comment.=tranwrd(&comment.," LYLAS " ," Love you like a sis ");
&comment.=tranwrd(&comment.," M8 " ," Mate ");
&comment.=tranwrd(&comment.," MFI " ," Mad for it ");
&comment.=tranwrd(&comment.," MoS " ," Mother over shoulder ");
&comment.=tranwrd(&comment.," MSG " ," Message ");
&comment.=tranwrd(&comment.," MTF " ," More to follow ");
&comment.=tranwrd(&comment.," MTFBWU " ," May the force be with you ");
&comment.=tranwrd(&comment.," MUSM " ," Miss you so much ");
&comment.=tranwrd(&comment.," MYOB " ," Mind your own business ");
&comment.=tranwrd(&comment.," n00b " ," Newbie ");
&comment.=tranwrd(&comment.," N1 " ," Nice one ");
&comment.=tranwrd(&comment.," NBD " ," No big deal ");
&comment.=tranwrd(&comment.," NE " ," Any ");
&comment.=tranwrd(&comment.," NE1 " ," Anyone ");
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&comment.=tranwrd(&comment.," NFM " ," None for me or Not for me ");
&comment.=tranwrd(&comment.," NIMBY " ," Not in my back yard ");
&comment.=tranwrd(&comment.," NLT " ," No later than ");
&comment.=tranwrd(&comment.," NM " ," Nothing much or Never mind ");
&comment.=tranwrd(&comment.," NMH " ," Not much here ");
&comment.=tranwrd(&comment.," NO1 " ," No one ");
&comment.=tranwrd(&comment.," NOYB " ," None of your business ");
&comment.=tranwrd(&comment.," NP " ," No problem ");
&comment.=tranwrd(&comment.," NRN " ," No response or reply necessary ");
&comment.=tranwrd(&comment.," NVM " ," Never mind ");
&comment.=tranwrd(&comment.," NW " ," No way ");
&comment.=tranwrd(&comment.," NW) " ," No way out ");
&comment.=tranwrd(&comment.," OIC " ," Oh I see ");
&comment.=tranwrd(&comment.," OMG " ," Oh my God ");
&comment.=tranwrd(&comment.," OMW " ," On my way ");
&comment.=tranwrd(&comment.," OO " ," Over and out ");
&comment.=tranwrd(&comment.," OOH " ," Out of here ");
&comment.=tranwrd(&comment.," OOTD " ," One of these days ");
&comment.=tranwrd(&comment.," OP " ," On phone ");
&comment.=tranwrd(&comment.," OTB " ," Off to bed ");
&comment.=tranwrd(&comment.," OTL " ," Out to lunch ");
&comment.=tranwrd(&comment.," OTOH " ," On the other hand ");
&comment.=tranwrd(&comment.," OTT " ," Over the top ");
&comment.=tranwrd(&comment.," OTTOMH " ," Off the top of my head ");
&comment.=tranwrd(&comment.," OTW " ," Off to work ");
&comment.=tranwrd(&comment.," OVA " ," Over ");
&comment.=tranwrd(&comment.," PCM " ," Please call me ");
&comment.=tranwrd(&comment.," PDQ " ," Pretty darn quick ");
&comment.=tranwrd(&comment.," PLMK " ," Please let me know ");
&comment.=tranwrd(&comment.," PLS " ," Please ");
&comment.=tranwrd(&comment.," PLZ " ," Please ");
&comment.=tranwrd(&comment.," PM " ," Private Message ");
&comment.=tranwrd(&comment.," PMFI " ," Pardon me for interrupting ");
&comment.=tranwrd(&comment.," PMFJI " ," Pardon me for jumping in ");
&comment.=tranwrd(&comment.," POAHF " ," Put on a happy face ");
&comment.=tranwrd(&comment.," POS " ," Parent over shoulder ");
&comment.=tranwrd(&comment.," PPL " ," People ");
&comment.=tranwrd(&comment.," PROLLY " ," Probably ");
&comment.=tranwrd(&comment.," PRT " ," Party ");
&comment.=tranwrd(&comment.," PRW " ," People or parents are watching ");
&comment.=tranwrd(&comment.," PTL " ," Praise the Lord ");
&comment.=tranwrd(&comment.," PTMM " ," Please tell me more ");
&comment.=tranwrd(&comment.," PXT " ," Please explain that ");
&comment.=tranwrd(&comment.," PU " ," That stinks! ");
&comment.=tranwrd(&comment.," Q " ," Queue ");
&comment.=tranwrd(&comment.," QIK " ," Quick ");
&comment.=tranwrd(&comment.," QT " ," Cutie ");
&comment.=tranwrd(&comment.," RL " ," Real life ");
&comment.=tranwrd(&comment.," RP " ," Role play ");
&comment.=tranwrd(&comment.," RME " ," Rolling my eyes ");
&comment.=tranwrd(&comment.," ROFL " ," Rolling on floor laughing ");
&comment.=tranwrd(&comment.," ROTFL " ," Rolling on the floor laughing ");
&comment.=tranwrd(&comment.," ROTFLUTS " ," Rolling on the floor laughing unable to
speak ");
&comment.=tranwrd(&comment.," RSN " ," Real soon now ");
&comment.=tranwrd(&comment.," RTFM " ," Read the manual disgust");
&comment.=tranwrd(&comment.," RUOK " ," Are you okay ");
&comment.=tranwrd(&comment.," SAL " ," Such a laugh ");
&comment.=tranwrd(&comment.," SC " ," Stay cool ");
&comment.=tranwrd(&comment.," SETE " ," Smiling ear to ear ");
&comment.=tranwrd(&comment.," SICNR " ," Sorry I could not resist ");
&comment.=tranwrd(&comment.," SIG2R " ," Sorry I got to run ");
&comment.=tranwrd(&comment.," SMHID " ," Scratching my head in disbelief ");
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&comment.=tranwrd(&comment.," SNAFU " ," Situation normal all fouled up ");
&comment.=tranwrd(&comment.," SOL " ," Sooner or later ");
&comment.=tranwrd(&comment.," SOMY " ," Sick of me yet ");
&comment.=tranwrd(&comment.," SOTMG " ," Short of time must go ");
&comment.=tranwrd(&comment.," SPK " ," Speak ");
&comment.=tranwrd(&comment.," SPST " ," Same place same time ");
&comment.=tranwrd(&comment.," SRY " ," Sorry ");
&comment.=tranwrd(&comment.," SS " ," So sorry ");
&comment.=tranwrd(&comment.," SSDD " ," Same stuff different day ");
&comment.=tranwrd(&comment.," SSINF " ," So stupid it is not funny ");
&comment.=tranwrd(&comment.," STW " ," Search the Web ");
&comment.=tranwrd(&comment.," SUITM " ," See you in the morning ");
&comment.=tranwrd(&comment.," SUL " ," See you later ");
&comment.=tranwrd(&comment.," SUP " ," What is up ");
&comment.=tranwrd(&comment.," SYL " ," See you later ");
&comment.=tranwrd(&comment.," T+ " ," Think positive ");
&comment.=tranwrd(&comment.," TA " ," Thanks a lot ");
&comment.=tranwrd(&comment.," TAFN " ," That is all for now ");
&comment.=tranwrd(&comment.," TAM " ," Tomorrow AM ");
&comment.=tranwrd(&comment.," TBC " ," To be continued ");
&comment.=tranwrd(&comment.," TBD " ," To be determined ");
&comment.=tranwrd(&comment.," TBH " ," To be honest ");
&comment.=tranwrd(&comment.," TC " ," Take care ");
&comment.=tranwrd(&comment.," TGIF " ," Thank God it is Friday ");
&comment.=tranwrd(&comment.," THX " ," Thanks ");
&comment.=tranwrd(&comment.," THNX " ," Thanks ");
&comment.=tranwrd(&comment.," THNQ " ," Thank-you ");
&comment.=tranwrd(&comment.," TIA " ," Thanks in advance ");
&comment.=tranwrd(&comment.," TIAD " ," Tomorrow is another day ");
&comment.=tranwrd(&comment.," TLK2UL8R " ," Talk to you later ");
&comment.=tranwrd(&comment.," TMB " ," Text me back ");
&comment.=tranwrd(&comment.," TMI " ," Too much information ");
&comment.=tranwrd(&comment.," TMOT " ," Trust me on this ");
&comment.=tranwrd(&comment.," TMWFI " ," Take my word for it ");
&comment.=tranwrd(&comment.," TNSTAAFL " ," There is no such thing as a free lunch ");
&comment.=tranwrd(&comment.," TPM " ," Tomorrow PM ");
&comment.=tranwrd(&comment.," TPTB " ," The powers that be ");
&comment.=tranwrd(&comment.," TSTB " ," The sooner, the better ");
&comment.=tranwrd(&comment.," TTFN " ," Ta ta for now ");
&comment.=tranwrd(&comment.," TTTT " ," These things take time ");
&comment.=tranwrd(&comment.," TTYL " ," Talk to you later ");
&comment.=tranwrd(&comment.," TTYS " ," Talk to you soon ");
&comment.=tranwrd(&comment.," TU " ," Thank you ");
&comment.=tranwrd(&comment.," TY " ," Thank you ");
&comment.=tranwrd(&comment.," TYT " ," Take your time ");
&comment.=tranwrd(&comment.," TYVM " ," Thank you very much ");
&comment.=tranwrd(&comment.," UCMU " ," You crack me up ");
&comment.=tranwrd(&comment.," UGTBK " ," You have got to be kidding ");
&comment.=tranwrd(&comment.," UKTR " ," You know that is right ");
&comment.=tranwrd(&comment.," UL " ," Upload ");
&comment.=tranwrd(&comment.," UR " ," Your / You are ");
&comment.=tranwrd(&comment.," UV " ," Unpleasant visual ");
&comment.=tranwrd(&comment.," UW " ," You are welcome ");
&comment.=tranwrd(&comment.," VEG " ," Very evil grin ");
&comment.=tranwrd(&comment.," VFM " ," Value for money ");
&comment.=tranwrd(&comment.," VGC " ," Very good condition ");
&comment.=tranwrd(&comment.," VIP " ," Very important person ");
&comment.=tranwrd(&comment.," VM " ," Voice mail ");
&comment.=tranwrd(&comment.," VSF " ," Very sad face ");
&comment.=tranwrd(&comment.," WAM " ," Wait a minute ");
&comment.=tranwrd(&comment.," WAN2TLK " ," Want to talk ");
&comment.=tranwrd(&comment.," WAYF " ," Where are you from ");
&comment.=tranwrd(&comment.," W/B " ," Write back ");
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&comment.=tranwrd(&comment.," WB " ," Welcome back ");
&comment.=tranwrd(&comment.," WC " ," Who cares ");
&comment.=tranwrd(&comment.," WCA " ," Who cares anyway ");
&comment.=tranwrd(&comment.," WIBNI " ," Would not it be nice if ");
&comment.=tranwrd(&comment.," WDALYIC " ," Who died and left you in charge ");
&comment.=tranwrd(&comment.," WDYK " ," What do you know ");
&comment.=tranwrd(&comment.," WIIFM " ," What is in it for me ");
&comment.=tranwrd(&comment.," WISP " ," Winning is so pleasurable ");
&comment.=tranwrd(&comment.," WITW " ," What in the world ");
&comment.=tranwrd(&comment.," WIU " ," Wrap it up ");
&comment.=tranwrd(&comment.," WK " ," Week ");
&comment.=tranwrd(&comment.," WKD " ," Weekend ");
&comment.=tranwrd(&comment.," WRT " ," With regard to ");
&comment.=tranwrd(&comment.," WOMBAT " ," Waste of money, brains and time ");
&comment.=tranwrd(&comment.," WRK " ," Work ");
&comment.=tranwrd(&comment.," WRUD " ," What are you doing? ");
&comment.=tranwrd(&comment.," WTB " ," Wanted to buy ");
&comment.=tranwrd(&comment.," WTF " ," Disbelief ");
&comment.=tranwrd(&comment.," WTG " ," Way to go ");
&comment.=tranwrd(&comment.," WTH " ," What the heck ");
&comment.=tranwrd(&comment.," WU? " ," What is up ");
&comment.=tranwrd(&comment.," WUCIWUG " ," What you see is what you get ");
&comment.=tranwrd(&comment.," WUF? " ," Where you from ");
&comment.=tranwrd(&comment.," WWJD " ," What would Jesus do ");
&comment.=tranwrd(&comment.," WWYC " ," Write when you can ");
&comment.=tranwrd(&comment.," WYLEI " ," When you least expect it ");
&comment.=tranwrd(&comment.," WYSIWYG " ," What you see is what you get ");
&comment.=tranwrd(&comment.," X " ," Kiss ");
&comment.=tranwrd(&comment.," XLNT " ," Excellent ");
&comment.=tranwrd(&comment.," YBS " ," You will be sorry ");
&comment.=tranwrd(&comment.," YCMU " ," You crack me up ");
&comment.=tranwrd(&comment.," YGBKM " ," You have got to be kidding me ");
&comment.=tranwrd(&comment.," YKWYCD " ," You know what you can do ");
&comment.=tranwrd(&comment.," YMMV " ," Your mileage may vary ");
&comment.=tranwrd(&comment.," YSYD " ," Yeah sure you do ");
&comment.=tranwrd(&comment.," YW " ," You are welcome ");
&comment.=tranwrd(&comment.," ZZZ " ," Sleeping or bored ");
run;
%mend emoticon;
```