

ORIGINAL ARTICLE

# Development and assessment of film excerpts used for emotion elicitation

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## Abstract

**OBJECTIVES:** Presentation of a film story is useful tool for inducing positive and negative emotional states. The aim of the present study was to select appropriate film clips that would be effective in the induction of certain emotion.

**METHODS:** The assessment of film excerpts was conducted on the sample of 173 Slovak university students. A set of 11 film excerpts was presented to participants. We analyzed the distribution of elicited emotions, the discreteness of target emotion as well as gender differences in emotional reactivity. Film excerpts were compared also according to the rate of valence and arousal of induced emotional state.

**RESULTS:** Each of the 11 film clips elicited the target emotion (amusement, sadness, neutral emotional state). Women reported higher level of sadness than men after film clips with that specific target emotion. Moreover, mute film clips were as effective as excerpts with dialogues.

**CONCLUSION:** Our results indicate that presentation of film clips (whether mute or with dialogues) is effective method for emotions inducing.

## INTRODUCTION

The range of techniques used for inducing emotions in experimental settings is constantly widening. Velten mood induction techniques (Sinclair *et al* 1994; Velten 1968), hypnosis (Whorwell & Houghton 1992), autobiographical recollection (Abele *et al* 2005) as well as exposure to music (Gagnon & Peretz 2003), film and pictures (Czekóová & Urbánek 2010; Bradley & Lang 2007; Cimrová *et al* 2011) are verified tools for inducing emotions. Each of these techniques has its pros and cons, and is more appropriate for specific research and therapeutic situation.

Westermann *et al* (1996) evaluated the effectiveness and validity of 11 mood induction procedures and found out, that presentation of a film story is the most effective in inducing positive and negative mood states. However, selection of appropriate film clips that would be effective in the induction of certain emotion is a challenging task. For example the excerpt has to be effective by itself and not only from the perspective of the whole movie. It has to be effective despite of gender, age, nationality and socio-cultural background. Establishing a set of universal film clips can be conducted only after an extensive group of researches, implemented in different countries and nations.

A couple of lists containing validated film excerpts for emotion elicitation are available. Philippot (1993) selected 12 film clips inducing neutral emotional state, joy, anger, fear, sadness and disgust based on results obtained in Belgian students. Gross & Levensor (1995) were inspired by the research of Philippot (1993), but they work with different film excerpts. They compiled a set of 16 films successfully eliciting amusement, anger, contentment, disgust, sadness, surprise, fear and neutral emotional state in American students. Hewig *et al* (2005) takes over a few of the clips validated by Gross & Levensor (1995), but they also started to investigate a couple of new excerpts inducing amusement, anger, sadness, disgust, fear and neutral emotional state. Film clips were verified on German students. One of the newest lists was prepared by Schaefer *et al* (2010). Participants were Belgian students presented with film clips evoking amusement, tenderness, anger, sadness, fear and disgust. Taken in whole there is a relatively broad range of validated film excerpts for emotion induction. Unfortunately, the majority of them are not available in Czech or Slovak language. Therefore, their usage in research or therapeutic situations is reduced in our country. We should be also aware of the fact that they have not been validated in a social, historical and cultural background of Slovakia and Czech Republic. For instance, Sato *et al* (2007) found out, that Japanese students reacted to certain film clip (“When Harry met Sally”) in a way different from the participants from the Western culture. It is also interesting that best film excerpts for eliciting amusement in the battery of Schaefer *et al* (2010) were from France or Belgium, while the participants were Belgian French-speaking students. These clips were more effective in that specific sample than other film excerpts that scored previously very well in a German (Hewig *et al* 2005) or an American sample (Gross & Levensor 1995). It should be emphasized that these findings were only related to film clips targeting amusement. These results motivated us to find out whether Slovak participants would react to previously validated film excerpts in a similar way. We concentrated on film clips inducing amusement, sadness and neutral emotional state. Our aim was to validate several excerpts from the list of Schaefer *et al* (2010) and also to validate some new film clips selected by us.

As mentioned previously, one of the obstacles in using film excerpts for inducing emotions is the absence of clips dubbed in the participant’s language. To avoid the barrier of language we also decided to assess the effectiveness of mute clips in comparison to film excerpts with dialogues. This idea is relatively new, as none of the widely accepted film batteries contains a mute clip for emotion elicitation. The only exceptions are clips used for triggering neutral emotional state. For instance Hewig *et al* (2005) presented abstract shapes for this purpose.

According to some researchers (Hagemann *et al* 1999; Gross & Levensor 1995) there are gender differ-

ences in the way of reaction to film stimuli. Women tend to report a greater level of affective reactivity than men and target emotion tends to be induced in greater level. On the other hand, Kring & Gordon (1998) found out that gender differences in emotional reactivity to film stimuli are in physiological reactions and expressivity only. Women did not describe themselves as having more intense emotions. The ambiguity of the recent results motivated us to examine gender differences in emotion reactivity to film stimuli in our research.

## MATERIAL AND METHODS

### *Participants*

A total of 173 undergraduates (124 females, 49 males) aged 19–33 (mean=21.6) participated in the study. All participants gave their consent to participate.

### *Procedure*

A set of 11 film excerpts was presented to participants in such a way that two films targeting the same emotion were not shown consecutively. We presented film excerpts in four different sets with changed order. Participants were instructed they would see several film clips and that were supposed to report their emotional reaction to the film. It was emphasized they had to report what they actually felt, not what they believed they should have felt. During the preparation and the realization of our research we were following the guidelines by Rottemberg *et al* (2007). Participants filled in the same questionnaire after each film clip. They were supposed to evaluate the intensity of eight emotions offered by the researchers (anger, amusement, sadness, embarrassment, surprise, fear, happiness, disgust) on an 8-point scale. They also had a possibility to add new emotions and their intensity by themselves. Based on the dimensional approach to emotions (Russell & Barrett 1999), the participants also had to fill in questionnaires about the arousal and the valence of their emotional state. For this purpose we used the 9-point Self-Assessment Manikin Scales. Higher scores were associated with higher level of arousal or positive emotional state, while lower scores were associated with lower level of arousal or negative emotional state.

Our goal was to elicit amusement, anger and neutral emotional states by selected film excerpts. All presented film excerpts were dubbed in Czech language (as they were not available in Slovak language) or they were mute. The participants did not report any hardship concerning this circumstance. Czech and Slovak languages are very similar, moreover, Czech-dubbed films are frequently presented on TV or cinemas in Slovakia. We attach a brief description of each film clip:

*Slunce, seno a pár facek* (“Sun, hay and few slaps”) (1989) /Amusement/ – Travelers have to jump off and on a moving train because it is not stopping at a station. The length of the clip is 1 min and 3 sec. This film excerpt was selected by us, as we would like to validate

the effectiveness of a traditional Czechoslovak comedy in eliciting amusement.

*The Dinner Game* (1998) /Amusement/ – The selected scene is humorous mainly because of a misapprehension between characters and laughter of one of them. The length of the clip is 1 min 42 sec. This excerpt elicited amusement and positive emotional state very successfully in the research of Schaefer *et al* (2010). We would like to verify, whether this French comedy would be similarly evaluated also by Slovak participants.

*When Harry Met Sally* (1989) /Amusement/ – In this excerpt one of the characters is simulating orgasm in a restaurant. This particular clip was validated by a range of studies (Schaefer *et al* 2010; Hewig *et al* 2005; Sato *et al* 2007; Gross & Levenson 2005). The length of the clip is 2 min 41 sec.

*The Curse of Mr. Bean* (1991) /Amusement/ – Mr. Bean is trying to jump down from a diving tower. The length of the clip is 2 min 12 sec. This film excerpt was selected by us as it is a mute clip without dialog. Only artificial laughter and the specific noise of Mr. Bean can be heard.

*The Bear* (1988) /Sadness/ – The film clip shows the death of a mother bear while searching for food and a reaction of a baby bear to this tragic event. The length of this clip is 4 min 3 sec. This excerpt is mute and it is a cut from a wildlife film, where the actors are real animals. We would like to investigate whether this specific combination of stimuli can induce sadness effectively.

*Dangerous Mind* (1995) /Sadness/ – A teacher has to tell students that their class mate is dead. This excerpt was very successful in eliciting sadness on the study of Schaefer *et al* (2010). The length of the clip is 1 min 55 sec.

*Schindler's List* (1993) /Sadness/ – German soldiers are burning dead Jews in a concentration camp. Schaefer *et al.* (2010) found out that this excerpt elicited negative emotional state as well as arousal very effectively. The length of this clip is 1 min 53 sec. We selected this film excerpt for our research because of the realistic presentation of well-known historic events.

*Philadelphia* (1993) /Sadness/ – A person, with killer disease is describing the pain and passion felt by an opera character to his lawyer. Schaefer *et al* (2010) found out that this excerpt was effective on the induction of sadness. The length of this clip is 5 min 31 sec.

*Hannah and Her Sisters* (1986) /Neutral emotional state/ – Two characters are shopping and discussing the personal life of one of them. This excerpt was validated by a couple of studies (Hewig *et al* 2005; Gross & Levenson 1995) and declared an effective tool for inducing neutral emotional state. The length of the clip is 1 min 38 sec.

*All the President's Men* (1979) /Neutral emotional state/ – A journalist is asking a man, present in a session of court, about his identity. Hewig *et al* (2005) verified the effectiveness of this clip in eliciting neutral emotional state. The length of the clip is 1 min 4 sec.

*Abstract shapes* /Neutral emotional state/ – A mute screensaver was used for eliciting neutral emotional state. We were inspired by the research of Gross & Levenson (1995) who verified the effectiveness of abstract shapes too. Colorful stripes were constantly emerging and vanishing on the screen. The length of the clip was 55 sec.

## RESULTS

Our main goal was to find out what kinds of emotions are induced by certain film excerpt and whether the target emotion is elicited in significantly higher level than other emotions. Moreover, we searched for gender differences in emotional reactivity to presented film excerpts. In addition, we compared film clips according to the valence and the arousal of induced emotional state.

A distribution of emotions and their mean levels for each film clip can be seen in Figure 1.

Analysis of variance for repeated measures revealed that amusement was elicited in higher level than all other emotions in the film *Slunce, seno a pár facek* [ $F(2,1204)=692.40$ ;  $p<0.001$ ], *The Dinner Game* [ $F(3,1204)=199.10$ ;  $p<0.001$ ], *When Harry met Sally* [ $F(3,1197)=407.90$ ;  $p<0.001$ ] and *The Curse of Mr. Bean* [ $F(3,1204)=445.90$ ;  $p<0.001$ ]. Film clip “*When Harry met Sally*” induced the highest level of amusement (mean=7.2) followed by “*Slunce, seno a pár facek*” (mean=6.7), “*The Curse of Mr. Bean*” (mean=6.6) and “*The Dinner Game*” (mean=5.0). There were significant differences between the mean levels of induced amusement in the mentioned film clips [ $F(3,513)=61.55$ ;  $p<0.001$ ] except for the mean level of amusement in the case of film excerpts “*Slunce, seno a pár facek*” and “*The Curse of Mr. Bean*”. Gender differences in the mean level of amusement were not found [ $F(1,171)=1.45$ ;  $p=0.23$ ].

The target emotion of sadness was induced in higher level than all other emotions in *The Bear* [ $F(5,1204)=131.10$ ;  $p<0.001$ ], *Dangerous Mind* [ $F(5,1204)=207.70$ ;  $p<0.001$ ], *Schindler's List* [ $F(5,1204)=342.90$ ;  $p<0.001$ ], and *Philadelphia* [ $F(5,1204)=100.90$ ;  $p<0.001$ ]. In each case, the level of sadness was significantly higher than other emotions except for the film “*Schindler's List*”. In this case no significant differences were found between the mean level of sadness and disgust. Film excerpts “*The Bear*” and “*Schindler's List*” induced the highest level of sadness (mean=6.3), followed by “*Dangerous Mind*” (mean=4.9) and “*Philadelphia*” (mean=4.2). The amount of induced sadness was significantly different in these films [ $F(3,513)=56.01$ ;  $p<0.001$ ] except for “*The Bear*” and “*Schindler's List*”. Moreover, gender differences in the level of sadness evoked by the analyzed film clips were detected [ $F(1,171)=20.81$ ;  $p<0.001$ ] – women reacted with higher level of sadness to all film clips with that specific target emotion.

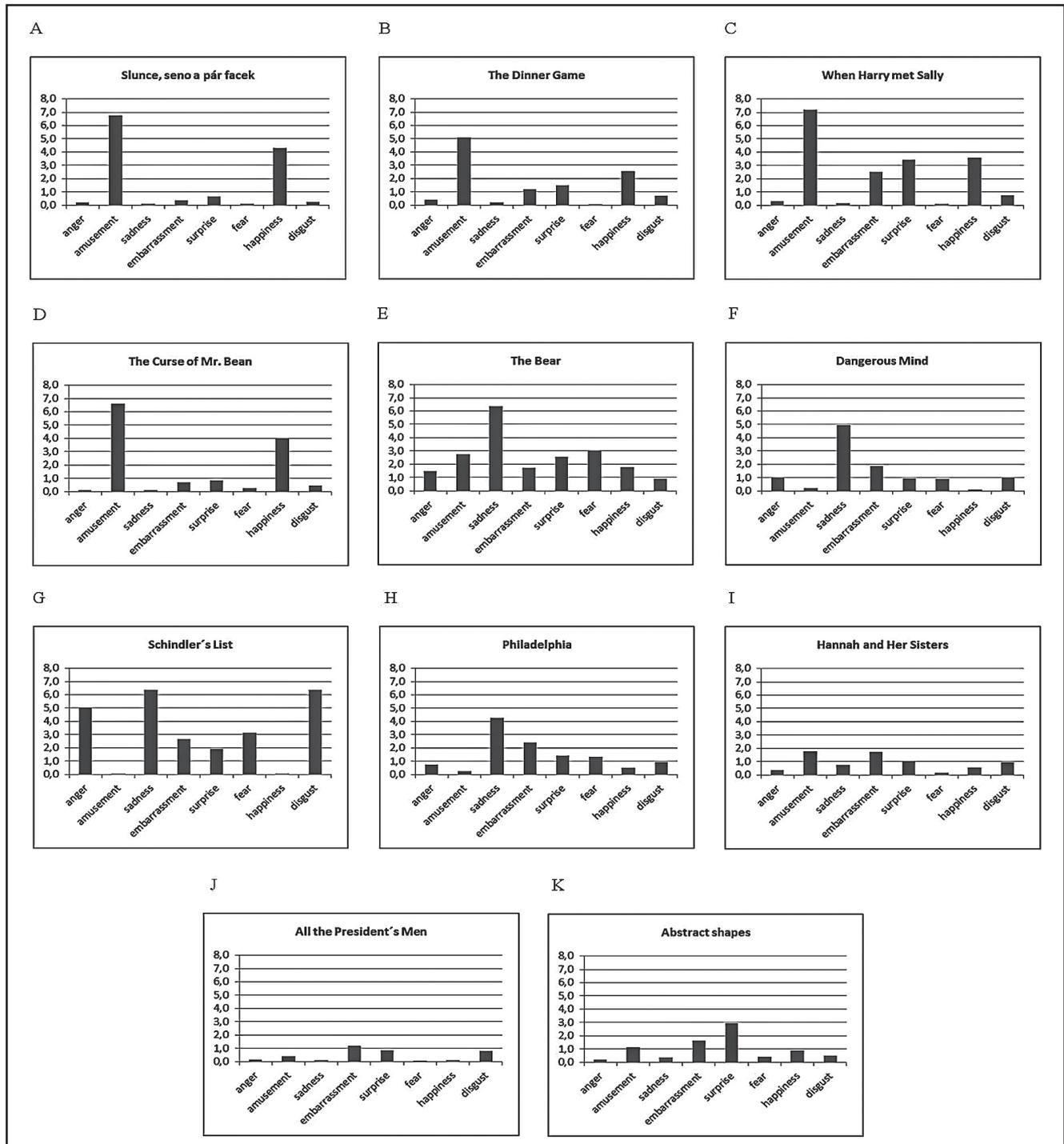


Fig. 1. Mean values of anger, amusement, sadness, embarrassment, surprise, fear, happiness and disgust in each film clip.

In the group of neutral film excerpts (“Hannah and Her Sisters”, “All the President’s Men” and “Abstract shapes”) the induced levels of emotions were very low and there were no significant differences between the induced emotions. Moreover, all of the investigated neutral film clips reached medium rates on the 9-point valence scale (All the President’s Men – mean=5.0; Hannah and Her Sisters – mean=5.2; Abstract shapes – mean=5.3).

In addition, overall valence and arousal of emotional state induced by each film clip (Table 1) were analyzed. There were significant differences between the film excerpts in a valence of induced emotional state [ $F(6,1720)=265.97$ ;  $p<0.001$ ], and also in arousal of evoked emotional state [ $F(6,1720)=71.274$ ;  $p<0.001$ ]. Post-hoc test revealed that the film excerpts with the target emotion of sadness induced the highest level of arousal, while the film clips with target emotions of

amusement and neutral emotional state induced lower levels of arousal. No gender differences in valence and arousal were found [ $F(6,1720)=1.61$ ;  $p=0.2$ ;  $F(6,1720)=1.69$ ;  $p=0.115$ ].

## DISCUSSION

It was found out that each of the investigated film excerpts evoked expected target emotions. However a complex analysis of the obtained results may help us to clarify which excerpts might be used more effectively in specific research or therapeutic situations.

The highest mean level of amusement was elicited by the film clip “When Harry Met Sally”, but it also induced a relatively high level of other emotions too. On the other hand, film clips “Slunce, seno a pár facek” and “The Course of Mr. Bean” induced amusement more “clearly”, so the level of other emotions was relatively low. Moreover, film excerpt “Slunce, seno a pár facek” induced the most positive affective state on the scale of valence. We highlight that this particular Czechoslovak film clip was effective for a sample of Slovak students, so it should be validated also for other countries. This criterion might be very important as the French film clip “The Dinner Game” was the least effective in evoking amusement in our sample, while in the research of Schaefer *et al* (2010), it was one of the best. It can be hypothesized that for a certain country a certain type of humor is characteristic. Another explanation is that these particular films are well known in certain countries, so the memories of the whole film plot can facilitate the induction of the target emotion. Film clips “When Harry Met Sally” were effective also in a sample of Slovak students. On the other hand we hypothesize, that a possible weakness of this clip might be its topic. It should be noted that in all studies validating also this particular film clip (Schaefer *et al* 2010; Hewig *et al* 2005; Sato *et al* 2007; Gross & Levenson 1995) the mean age of the participants was very similar, they were young adults. We strongly recommend validating this (and also other) clip on a sample of older people. According to the obtained results it can be stated that the mute film clip “The Course of Mr. Bean” was as good as other excerpts with dialogs. This finding might be the first step in a more extensive research of mute clips in eliciting emotions.

The highest level of sadness was evoked by film clips “The Bear” and “Schindler’s List”. “Schindler’s List” also induced the most negative emotional state on the valence scale. On the other hand, there were no significant differences between the level of sadness and disgust in that particular clip. Therefore, the film clip “Schindler’s List” might be used in researches where the goal is to induce a general negative emotional state and the specific kind of induced emotion is not important. “The Bear”, as a mute film clip, evoked the same level of sadness as the film excerpt “Schindler’s List” and was the second best in evoking general negative emotional state on valence scale. As can be seen

**Tab. 1.** The mean valence and arousal of emotions induced by selected film excerpts (higher scores are associated with higher level of arousal or positive emotional state, while lower scores are associated with lower level of arousal or negative emotional state).

Valence		Arousal	
1	Schindler’s List (2.8)	1	Abstract shapes (2.8)
2	The Bear (3.7)	2	Hannah and Her Sisters (3.1)
3	Dangerous Mind (4.0)	3	The Dinner Game (3.2)
4	Philadelphia (4.1)	4	All the President’s Men (3.2)
5	All the President’s Men (5.0)	5	The Course of Mr. Bean (3.3)
6	Hannah and Her Sisters (5.2)	6	Slunce, seno a pár facek (3.4)
7	Abstract shapes (5.3)	7	When Harry met Sally (4.0)
8	The Dinner Game (6.3)	8	Philadelphia (4.3)
9	The Course of Mr. Bean (7.2)	9	Dangerous Mind (4.3)
10	When Harry met Sally (7.3)	10	The Bear (4.9)
11	Slunce, seno a pár facek (7.5)	11	Schindler’s List (6.0)

in Figure 1-E this clip evoked also some positive emotional states. According to the verbal feedbacks from the participants, the high level of eventual sadness was partly caused by the rise of positive emotions during the film plot. In this film clip the viewer follows the development of the tragic situation (with some elements inducing positive emotions), while on other clips the viewer is directly exposed to the event inducing sadness. The film clip “Dangerous Mind” evoked the target emotion of sadness most “clearly” so the level of other emotions was very low. However the level of sadness was also low in comparison to other clips with the same target emotion. The film excerpt “Philadelphia” was the least effective in inducing sadness, and also in the evocation of general negative emotional state. We hypothesized that this result might be caused by the length of the film clip.

All the film excerpts evoking neutral emotional states reached very similar results. However, we recommend film clip “Hannah and Her Sisters” for usage in future researches because it has the most complex plot and its effectiveness was also proved by other studies. We suggest, that the range of film clips evoking neutral emotional states should be broadened because available clips are relatively old, so the visual aspect of these excerpts (for example the outfit of the characters) may be a disturbing factor. Because of this fact particular clips may elicit certain emotions not because of the plot, but because of their unfamiliarity for the present viewer.

Our findings of gender differences in emotional reactivity to film clips in part corresponded to the results of Gross & Levenson (1995) and Hagemann *et al* (1999). In our research women reported higher level of sadness than men after film clips with that specific target emotion. On the other hand there were no gender differences in the level of induced amusement

or arousal at all. Only after the film clip “Schindler’s List” women reported more negative general emotional states than men. In general, there are opposite findings across the studies about gender differences in emotional reactivity to films. The possible reason could be the fact, that each study used different film excerpts. It would be useful to assess what kind of plot, visual and verbal factors can influence emotional reactions in men and women.

Further experiments should try to elicit a broader range of emotional states, as well as verify the effectiveness of mute film clips in eliciting different emotions. Our results indicate there is a huge perspective in using mute film clips as tools for inducing emotions. Also the range of methods used for evaluating induced emotional states should be broadened. For example behavioral and physiological correlates of emotional changes should be monitored. Moreover, socio-cultural differences between nations may lead to different reactions to presented film clips, therefore we recommend developing a set of film clips validated for a specific country.

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