# Identity Use and Misuse of Public Persona on Twitter

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Abstract: Social media sites have appeared during the last 10 years and their use has exploded all over the world. Twitter is a microblogging service that has currently 320 million user profiles and over 100 million daily active users. Many celebrities and leading politicians have a verified profile on Twitter, including Justin Bieber, president Obama, and the Pope. In this paper we investigate the ''hundreds of Putins and Obamas phenomenon' on Twitter. We collected two data sets in 2015 containing 582 and 6477 profiles that are related to the G20 leaders' profiles on Twitter. The number of namesakes varied from 5 to 1000 per leader. We analysed in detail various aspects of the Putin and Erdogan related profiles. For the first ones we looked into the language of the profiles, their follower sets, the address in the profile and where the tweets were really sent from. For both profile sets we investigated why the accounts were created. For this, we deduced 12 categories based on the information in the profile and the contents of the sent tweets. The research is exploratory in nature, but we tentatively looked into online identity, communication and political theories that might explain emergence of these kinds of Twitter profiles.

## 1 INTRODUCTION

Many social media sites have been created during the last 10 years and Facebook has now over one billion users and many other sites have hundreds of millions of users. The Chinese microblog service Sina Weibo (China, 2015), for instance, has over 500 million users mainly from the mainland China. The first microblog service in the world, Twitter (Twitter, Inc., 2005), has 320 million monthly active users at the time of writing. 79% of the users of Twitter have indicated that their address is outside of USA and 80% of them use mobile terminals to access Twitter. The site currently supports 35+ languages, including practically all European languages, Japanese, Korean, Hindi, Arabic, Persian and Chinese. 500 million tweets are submitted daily to the site.

Twitter offers 140 character long messages, tweets, that users can create using a browser or a smart phone application. After uploading it to the site, the tweet is distributed to the followers of the user. All the tweets are stored by the site. If the tweet is public, it can be found by the search engines. In the site-internal search engine it is possible to use any string as a keyword, including hashtags (#...). The followers will get the tweets once they have logged in to the site. A user can retweet a tweet to his or her followers. In this way a tweet can reach a much larger set of users than the originator of the tweet has. One can also send a private tweet to user by using his or her screen name as the sole address at the beginning. Mentioning user's screen name inside a tweet notifies that user as well, even if he or she is not a follower.

Twitter also has APIs through which the public tweets as well as the complete user profile data can be retrieved. The followers of a user are also retrievable. We will use these features in this study.

The paper is organized as follows. In Section II we introduce theories that are helpful in interpreting the 'hundreds of Putins and Obamas phenomenon' in Twitter. In section III we will describe the data set we are using in our analysis. In section IV we will present the results concerning the deduced profile categories. Section V contains a short related work part and VI concludes.

# 2 THEORIES ABOUT SOCIAL MEDIA PRESENCE AND IMPERSONATION

## 2.1 Some Preliminary Observations on the Data

We first share some observations that give us clues about possible reasons for the existence thousands of accounts that are related with public figures. The Russian president has two verified profiles, 'President of Russia @KremlinRussia_E' (with user_id 205622130 and 296598 followers in March 2015), established in October 2010 in English, and the Russian profile 'Президент России @KremlinRussia' (with user_id 158650448 and 2139735 followers in March 2015), established in June 2010. It is obvious that president Putin does not have a need to establish almost 600 (actually almost 800 in Nov. 2015) profiles in Twitter for himself under his name or under alias, although he might have an account carrying his own name. None of those almost 600 matching accounts we found is verified, except the above two. Thus, we do not know whether president Putin runs an account of his own, under his name or under some other identity in Twitter or not. Three accounts claim to be run by Putin, @PutinRF_Eng had over 225000 followers. It joined Twitter in Nov. 2012 and has been active until the last days. Another account with the screen name @PutinRF has over 1 million followers and it also says that it is an official account of Putin. This account mostly tweets in Russian and has joined Twitter in Dec. 2011. @PutinRF_Ita also exists, but it only has tweeted a short time. Further, there is an account in Arabic with screen name @Vladimirarabia, but it has been active only a short time in Sept. 2011. In the profile it claims to be controlled by president Putin, as well. A fifth account is @PutinRF2012 that joined in Dec. 2011 but that account has been passive since February 2012. It is claimed in the profiles of @PutinRF that if Putin himself tweets, the tweet is signed by VP/ВП. In any case, it is highly probable that the majority of the hundreds of accounts carrying his name in the name field or in the screen name of the profile are established and controlled by other people, partially also outside Russia. Some of the accounts announce in the profile that they are parody, commentary or fan accounts according to Twitter rules (Twitter Help Center, 2014), but most do not belong to these categories. Thus, it is possible that they are impersonating president Putin in the sense Twitter defines it – or the people controlling them want to hide their true identity by using Putin's identity.

Looking at Obama-related accounts we can observe similar phenomena. There are almost 1000 accounts in our data set that are related with Obama. Some accounts indicate clearly that they are parody accounts or fan/supporter accounts. There are also accounts that claim to be controlled by president Obama, but most probably are not. President Obama only has two verified accounts, @BarackObama and @POTUS. The former was created as early as in March 2007, the latter in June 2013. President Obama is controlling both, but mostly his aides tweet through the former (unless tweet is signed by –BO). As an example of a confusing profile one can pick one with the screen name @President and name 'US President News'. It is not verified and it also states in the bio to be unofficial, although it carries the official seal of the US president in its profile picture. It was created in March 2011, has circa 50 thousand followers and has tweeted over 60000 times, i.e. tens of tweets per day in average. From the contents of the tweets and URLs it often includes into the tweets one can conclude that it is critical about Obama's politics, while keeping meticulously track of his appearances and statements. To better understand what might be the reasons behind creating profiles that utilize the famous leader's identity to a smaller or greater extent, we first look at theories that might be of relevance in explaining the phenomena.

## 2.2 Anonymity

Anonymity is the situation where the message source is unknown or it is hidden to a large extent (Scott, 2004). That means that the person, i.e. the unique biological human being sending the message, is not identified by others (Lapidot-Lefler and Barak, 2012).

Staying anonymous is dependent on and in relation to a certain context and medium (Suler, 2002). On the Internet, the amount of personal information given may be chosen by the individual; therefore, online identity may be between true anonymity and fully identified (Ardia, 2012). In the latter case the digital identity (such as name, picture, social security number, used address, etc.) used by the communicating human being can be traced back to him or her with certainty. It is also dependent on the online service used (Zhao et al., 2008), and to which extent it allows its users control their social presence through employment of various identity

cues (Lapidot-Lefler and Barak, 2012). For instance, Twitter has the information using which IP address the profile @PutinRF_Eng was created and from which IP addresses it is being used. But it does not necessarily know the real name of the person(s) issuing the tweets. The users following the profile do not even know the IP-addresses. If the account is verified, though, Twitter Inc. guarantees that the real person or organisation identified on the profile has indeed created (or later rendered control over) the profile and the issued tweets originate from this identified source. This is a strong identity cue.

Online anonymity influences how the Internet is used. The major effects may be listed as online disinhibition effect, enabling and encouraging free expression, changes in the quality and quantity of comments, and exploitation of the Internet for malicious activities.

Suler (2004) defines online disinhibition affect as the less restrained behaviour on cyberspace compared to face-to-face communication. It has two types: toxic disinhibition and benign disinhibition. Toxic disinhibition implies usage of offensive language, cruel comments, or surfing criminal websites (Suler, 2004), and it usually damages other people's images (Lapidot-Lefler and Barak, 2012). Benign disinhibition stands for the salutary effects that may cover sharing intimate information, or acts of kindness or generosity (Suler, 2004); and may involve self-therapeutical effects through increased amount of confessional self-disclosures (Belk, 2013).

Anonymity provides a safe haven for those who are afraid to disclose their identities when expressing their views (Santana, 2014). Therefore, it increases speech variety (Akdeniz, 2002), and encourages exchange of different types of information and opinion (Kaye, 2015). Furthermore, it influences participating in processes of social and political change (Hollenbeck and Zinkhan, 2006), hence it is essential in repressive regimes. To that effect, online social networks provide disguise for pro-democracy activists and journalists (Bodle, 2013).

However, recent studies (Santana, 2014; Fredheim et al., 2015) show that anonymity decreases the level of civility of online discussions, and when their identity is known people tend to comment less, pay attention not to make typos, avoid obscene language and shift their remarks from personalities to issues.

Unfortunately, anonymity enables exploitation of the Internet for malicious purposes, as well. Spamming, deception, hate mailing, impersonation and mispresentation, online financial fraud (Christopherson, 2007; Kling et al., 1999), cyber-smearing, flaming, online terrorist activities, various forms of cybercrime such as high tech paedophilia, difficulty of credibility evaluation on important issues, and inability to get credit for input/ideas especially in decision-making systems (Scott, 2004) may be listed as the problems anonymity creates on cyberspace.

## 2.3 Identity and Impression Management

As a socially constructed concept, identity differs from the sense of self because, it is the way the self is known to others, and it requires existence of other people (Altheide, 2000). Since how the identity is perceived by others affects the way the person is treated, individuals try to control their impressions on people. Goffman (1959) calls this management of identity impression management. Leary and Kowalski (1990) define impression management as the behavioural attempts to influence the perception of others about ourselves. Dividing their identity into two, private and public; individuals adjust their public identity according to the situation by playing conditional characters so that they appear attractive to people surrounding them, and they use their private identity as a preparation phase for their public performance. (Goffman, 1959.) According to Miller (1995) online communication provides a new platform for self-presentation through assertions and displays about the person. Especially online social networks enable their members to, in Sundén's words (2003), "type oneself into being". Online, people may show various features of their identity without the obligation to fully present themselves (Suler, 2002).

Yet, the ubiquitous nature of the Internet, and the relative lack of control on the audience necessitate that online identities are kept under control. And it is even more important for celebrities to do so because of the commercial value of their identity and the constant public scrutiny on them. The online identities of famous people are a continuum of their branded-selves and should continue to attract attention and to acquire cultural and monetary value (Marshall, 2010; Hearn, 2008). Politicians use their online identities to communicate with voters and to make political statements without any intermediary media (Skogerbø and Krumsvik, 2015). Their characters displayed on media convey their values, and eventually this influences how their policies are perceived by the citizens, and whether or not the public vote for them (Castells, 2007; Marshall, 2010). A unique example of how politicians use their online presences is Barack Obama's 2008

presidential campaign, during which he used the Internet for organizing voters, fund raising, and advertisement (Kiss, 2008; Miller, 2008). The profile @BarackObama established in March 2007 was a part of the campaign Artists use their online presences as a continuum of their cultural merits along with their main art form (Marshall, 2010).

# 3 CASE STUDIES

## 3.1 Data Set Description

Our data set consists of semi-manually collected accounts from Twitter that are related with G20 leaders. The presidents or kings were selected from the nation states, unless they are ceremonial figures, like the German 'Bundespresident' and the Queen Elizabeth from UK. From EU Donald Tusk and from the European Central Bank the Director General Mario Draghi was included. From Russia data also for Prime Minister Dmitry Medvedev was collected

The collection was performed in two stages. In March-April 2015 the search engine of Twitter was used in order to find all users with the keywords like *@Putin*, putin, or Путин. The searches returned over 600 users. Some of them are just quoting the word 'Putin' or Путин in their tweets, but almost 600 have the character string 'Putin', or a specific modification of it (e.g. 'putin' or 'PUTIN', or 'Путин') included into the screen name or into the name field of the account. We have selected to our data set 579 accessible accounts where the character string 'putin', or a modification where one or more of the letters have been replaced by a corresponding capital letter, appears as part of the screen name. In addition, we selected all accounts where Putin or some modification of it as above or Путин (or a similar modification with capital letters as above) appears in the name field. Among those 579 most carried 'putin' or 'vladimir putin' with some additions or omissions in their publicly accessible screen name, such as @putinkgb or @Putin_Vladimir. With these selection criteria we have also accounts in our data set that are not really related to president Putin, but a vast majority of them are. We also found circa 10 accounts where a slightly different screen name leads to the same user_id and account inside Twitter. Such an account is included only once into our data set. Three accounts had been deleted or blocked and could not be accessed at all. In addition to the 579 accounts above, we included the accounts of president Obama with screen name @BarackObama (user_id 813286 and circa 57.4 million followers), as well as two verified accounts of the Russian prime minister, Dmitry Medvedev, @MedvedevRussia (with user_id 153812887 and 3638691 followers) in Russian and @MedvedevRussiaE (with user_id 153810519 and 914990 followers) in English. Thus, the entire data set contained 582 profiles. We also collected all followers of all those 582 profiles.

The second collection was performed in Nov.-Dec. 2015 directed towards the leaders of G20, including Putin. We have used Twitter API function users/search, with full name of country leader as a parameter. In the latter collection we found 786 Putin related profiles. Limitation of this approach is that users/search returns only 1000 results.

We report here the results mainly from the earlier collection for Putin, Medvedev and Obama. We did not collect followers for all the 6477 profiles in Nov. Dec. 2015.

Table 1: Number of Twitter Accounts for G20 Leaders

| **Public Persona** | **# Related Profiles** |
|---|---|
| Cristina Fernandez de Kirchner | 5 |
| Malcolm Turnbull | 54 |
| Dilma Rousseff | 332 |
| Justin Trudeau | 168 |
| Xi Jinping | 64 |
| Francois Hollande | 215 |
| Angela Merkel | 308 |
| Narendra Modi | 1000 |
| Matteo Renzi | 111 |
| Shinzo Abe | 46 |
| Park Geun-hye | 51 |
| Enrique Pena Nieto | 320 |
| Vladimir Putin | 786 |
| king Salman | 559 |
| Jacob Zuma | 153 |
| David Cameron | 999 |
| Barack Obama | 997 |
| Donald Tusk | 72 |
| Mario Draghi | 36 |
| Recep Tayyip Erdogan | 201 |
| TOTAL | **6477** |

## 3.2 Analysis of Putin Related Profiles (Spring 2015 Collection)

As was discussed above, Russian president has two officially verified profiles and some further profiles might be controlled by him or by his aides. One indication of the real controlling entity might be other leaders of Russia and leaders of other big countries. Interestingly, president Obama's official account followed @Putin, @president_putin, and @VladimirPutin, and both official accounts of the Prime Minister Medvedev above, but none of the above verified accounts of the Russian president. @KremlinRussia_E followed @BarackObama, though. As can be expected, the prime minister's account followed @KremlinRussia and @KremlinRussia_E, each other, and the latter also follows @BarackObama. None of the prime minister's accounts follows, though, any other of the accounts in our first data set, especially none of those three "Putins" that president Obama's account follows.

It is clear that most of the profiles referring to president Putin either by name in the name field or in the screen name is not controlled by him or his aides. This is because the content is often critical of him or ridiculing him and some profiles tweet in languages that are of less importance for the Russian president. Some non-official profiles also only have a few tweets and the last tweet was issued years back. Most profiles tweet in English. Some profiles announce their location, to be in Kremlin, in Russia, or in other countries, like in USA, or UK. Most do not indicate location at all. Thus, our assumption is that with a high probability president Putin has a few accounts in Twitter that he or his aides are controlling, but vast majority are not controlled by him or his aides.

## 3.3 User Profile Data (Spring 2015 Collection)

We collected the complete profile for each user in the above data set of 579 profiles and those of Medvedev and Obama. This is possible, even if the tweets are protected. There were 22 profiles where the tweets were protected. We parsed the user profile data in order to get values for certain attributes. The attributes in the user profile records are mostly named in a similar manner as below. We have taken the earliest point of time found in the user profile record to mark the creation time and the latest point of time anywhere in the record as the last activity time. The times are given in the records with UTC 0000 offset, and with the resolution of one second, but we only use the resolution of a day in our study.

From the user profile records we extract the following information:

- user_id (id): what is the Twitter-internal unique identifier for the screen_name
- account_created_at: the smallest timestamp inside the record in any created_at=datetime.datetime() item
- tweets_protected: (protected; True/False)
- language (lang): language of the account (e.g. 'ru', 'en')
- location (location); claimed location of the user
- followee_count (friends_count); number of other profiles followed by the profile ,
- followers_count (followers_count); how many followers the profile has?
- number_of_tweets (statuses_count); how many tweets the profile has sent
- last_activity_at: the highest timestamp in the created_at=datetime.datetime() item

The language attribute 'lang' can have many values in a user record. We observed that there might be at most two different in our data set. The most often occurring is recorded as the language of the profile. We found 274 profiles where the language was Russian (ru), and 251 where the language was English (en). Spanish (es) was recorded for 16 profiles. Seven profiles were categorized to use Japanese (ja). Major European languages occurred as main language on few profiles for each language. In five cases we could not determine the language from the user profile record automatically.

Of the accounts in our data set, circa 300 have tweeted during March 2015 and later. About 240 have not tweeted during 2015 and 87 have not been active since 2012.

## 3.4 Follower Data (Spring 2015 Collection)

For all 582 profiles we collected all the followers we could. There were roughly 66.9 million of them. In Table 1 all profiles with more than 10000 followers are shown in the order of ascending creation dates. If we ignore those with over 100000 followers the rest of the profiles have at most 60000 followers and 97 % of the profiles have less than 10000 followers. Among them the average number of followers is 654. However, if we drop only the 5 verified profiles that all have more than 100000 followers, the

average number of followers jumps to 4230. The overall number of followers of all non-verified profiles is 2444387, the number of distinct followers is 2159743, and the overall number of distinct followers except those of Obama is 5897322. The overall number of distinct followers in the whole set is 62496330. Thus, we can infer that almost 6 million users follow either the four verified profiles controlled from Kremlin or the various unofficial 'Putin' profiles and circa 2.16 million follow at least one profile in the latter category.

We have calculated the pairwise intersecting follower sets for all users in our data set. The goal is to investigate the distribution of the followers among the profiles and also find out the reciprocal follower relationships. The entire follower intersection table contains 169026 rows. 82 % of the intersections are empty. It is to be expected that those intersections will be largest where both follower sets are among the largest ones. Interestingly, only @MedvedevRussia and @KremlinRussia have 1.43 million common followers, all other pairs have less than one million. Only 15 profile pairs have more than 100000 common followers, the pairs consisting of all the verified five profiles, PutinRF, and PutinRF_Eng (cf. Table 2).

As is usual in social media graphs, the distributions are strongly skewed. This also holds for the intersection sizes. There are circa 60 intersections, where the intersection size is over 50 % of the smaller follower set.

Table 2: Profiles with more than 10000 followers

| Screen name | Followers | Created | Lang |
|---|---|---|---|
| BarackObama | 57467473 | 20070305 | en |
| Putin | 42571 | 20080219 | en |
| Puitn_Vivat | 20366 | 20090914 | ru |
| putin2012 | 25153 | 20091012 | ru |
| iPutin | 13422 | 20100202 | en |
| MedvedevRussia | 3638691 | 20100609 | ru |
| MedvedevRussiaE | 914990 | 20100609 | en |
| KremlinRussia | 2139735 | 20100623 | ru |
| PUTIN_VLADIMIR | 59264 | 20100820 | en |
| KremlinRussia_E | 296598 | 20101021 | en |
| Putin_V_V | 17753 | 20110315 | en |
| ElHijoDePutin | 17076 | 20110720 | es |
| Prote | 24517 | 20110823 | ru |
| PutinRF | 1152865 | 20111216 | ru |
| vvp_kreml | 438248 | 20120106 | ru |
| putin_off_ | 10306 | 20120322 | ru |
| PutinRF_Eng | 227715 | 20121107 | en |
| DarthPutinKGB | 25589 | 20121119 | en |

# 4 PROFILE CATEGORISATION

## 4.1 Profile and Tweets Types in the Putin Related Set (Spring 2015 Collection)

The analysis of Vladimir Putin related profiles on Twitter showed that there are clearly different kinds of profiles. They were created for various reasons including parody, impersonation, providing news, using Putin's identity for advertisement, political campaigns, commentary; and some of them were stated as bots.

Therefore, it was deemed appropriate to classify the profile set according to its nature. The categorization was established according to the information on profile bios, and the content of the tweets. It was assumed that the first tweet would state the purpose of establishing the profile. Fig.1 below shows the deduced categories and the number of profiles in each category.

Two verified profiles were found related to Vladimir Putin: KremlinRussia and KremlinRussia_E. Both profiles work as newsfeed from Kremlin informing their followers about the deeds of Vladimir Putin; most tweets link to http://en.kremlin.ru website.

Personal profiles are the profiles that have 'Putin' in their name or screen name, but are not pertained to Vladimir Putin. They may be namesakes; among them onetimes that are set up to post a tweet, or communicate without revealing the real user identity, and usually used only once or occasionally when required; or profiles which use Putin's name to hide the user identity or joke, but do not post anything related to Vladimir Putin himself. In total 295 personal profiles were found; 97 of them were namesakes, one was a onetime profile, and 197 were using, Vladimir Putin' as part of their digital identity thus prohibiting mapping from digital identity in Twitter to their real identity.

Adverts are the profiles that use Vladimir Putin's identity to attract followers, and post messages related to their own promotion; or profiles that are used to increase number of retweets or mentions of a particular user. 19 profiles were found to be of this nature.

Newsfeeds, as the name implies, are the ones formed for objective of broadcasting reports or other information. In total 23 profiles were found, 16 of which were linked to a website or programme. One of them is @putinizer with the highest degree in Fig. 3. It is related to http://putin.trendolizer.com/. Another with protected tweets is @putinism_net that

takes to an open site http://putinism_net. The latter is run in South- America and offers contents critical to Putin.

Commentary profiles are used to discuss or state opinions about the current events with a concentration on Vladimir Putin or Russian politics. 25 commentary profiles were found.

Fan profiles are built for expressing admiration, respect etc. towards Putin. Six fan profiles were identified.

Parody profiles are set up to humorously counterfeit other people, characters, groups or objects (Highfield, 2015). Highfield (2015) classifies parody profile tweets into five groups and states that they not only post character-specific tweets but also mention current or newsworthy subjects, trending topics (i.e. popular hashtags), or post sponsored or self-promotional comments framed in the context of the fictional universe or the character's stereotype. They may reach more than million followers (i.e. @Lord_Voldemort7). In our data set, 58 parody profiles were found. Conspicuously, @Plaid_Putin, @huyloputin and @PutinsEconomy were the profiles with a significant number of followers, 6582, 6310 and 4458 respectively. @putinbust, @VovochkaPutin, and @WhoisMistaPutin were the other popular profiles with 1729, 1108, and 1798 followers respectively.

Six profiles (@putiin_vovka, @putin_ball, @Putin_bot, @putinkremline, @Vladi_Putin_bot, @vseh_pereigral) were classified as spam/bots, since they seemed to post automated tweets. Two of these profiles - @Putin_bot and @Vladi_Putin_bot - were stated to be bots in their profile bios.

Campaign/protest profiles are usually built to voice people or groups who have similar thoughts or attitudes towards certain events. These may be elections or changes of legislation. There are over 50 profiles that were established during 2011 and stopped tweeting before July 2012. @Putin_Rus only tweeted on Nov. 5, 2011 four tweets, but gathered over 2000 followers. Profiles like @PinkestPutin, @putinarainbow stand against the gay laws in Russia and exemplify the latter category. There is a detailed analysis in (Spaiser et al., 2014) of the latest election campaigns in Russia in 2011 and 2012 and the role of Twitter in them.

Backchannel's are the Twitter profiles for public journals like radio shows, books, where they get in touch with their audience. In our data set there were 7 backchannel profiles which were set for the books, websites or documentaries concerning Vladimir Putin (e.g. @MrPutinBook, @i_putin, @PutinsKiss).

There were 41 profiles that would publish tweets against Putin (e.g. @putinvor, @SayNoToMrPutin, @StopPutinstop). Several profiles with 'stop' and 'putin' in the screen name were created in 2014-2015 that clearly are pro-Ukrainian and comment the crisis from the Ukrainian perspective.

There were 79 impersonation profiles, and they showed a different nature. Some profiles' tweets were a mixture of personal posts, and posts from 'Putin's mouth', and news about Putin. @ComradePutin, @UncleVladimir, and @VladPutin2013 are examples of these kinds of profiles.

Some users constructed a modified image of Vladimir Putin reflecting on how they perceived him. The impersonations accentuated different personality characteristics, or public presences of Vladimir Putin. These included, but were not limited to a swanky, drunkard, conceited, athletic, sexy, alpha dog, or gay character. They voiced subtle tease, or disapproval of his politics or his public image in their messages. Yet most of them did this in a humorous way, in the manner of a caricature.

There were also 2 accounts established for school project and to do research: @PutinStat and @PutinAP.

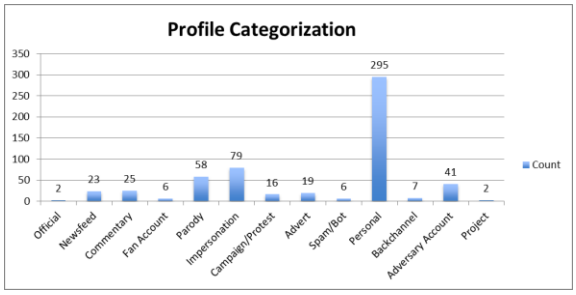


Figure 1: Profile Category Distribution for Putin related profiles.

## 4.2 Network Analysis in the Putin Related Set (Spring 2015 collection)

Based on the follower data we calculated the followee relation inside our data set. That is, we found out which profile follows another profile at least one way inside the data set.

Figure 2 shows mutual followers graph. There are 57 nodes, and 107 edges. The diameter of the graph equals to 4. Graph consists of 15 components. The largest one consists of 21 nodes and 54 edges, and then there are two components of 6-nodes, two three-nodes components, and 10 two-node components. Component that consists of 6 nodes is

formed from four verified profiles, belonging to the Russian government: @MedvedevRussia, @MedvedevRussiaE, @KremlinRussia, and @KremlinRussia_E, then there is verified profile of @BarackObama, and @Putin, that is not verified. Figure 3 shows the degree distribution of the graph. @putinizer has the highest degree equal to 10, i.e. it is mutually following 10 other profiles. The average degree is 1,864.

There are 227 profiles in the data set that follow at least one other profile in the same set. The graph induced from 582 profiles consists of 227 nodes and 829 edges. It is depicted in Figure 4. Maximal indegree equals to 98 (belongs to @MedvedevRussia), maximal outdegree equals to 92 (belonging to @putin_vovchik). This means that 98 profiles in the data set follow @MedvedevRussia and @putin_vovchick follows 92 other profiles in the data set.

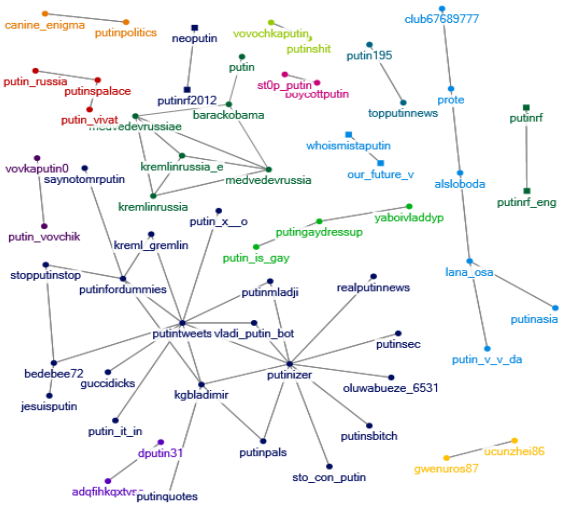


Figure 2: Mutual followers graph.

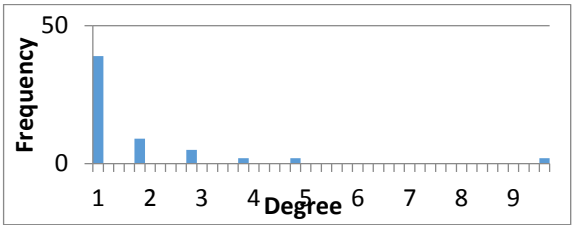


Figure 3: Degree distribution of the mutual followers.

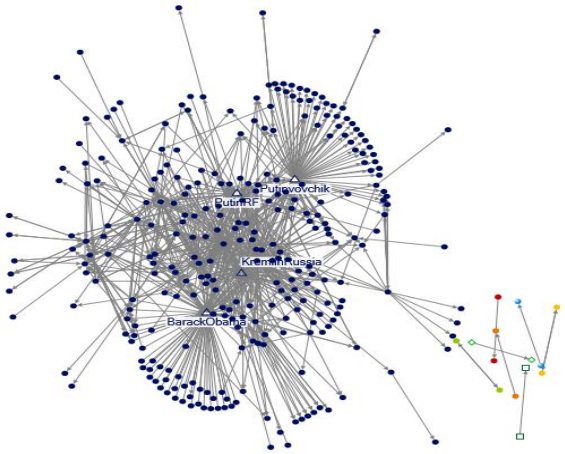


Figure 4: Induced graph of the follower relationships in the Putin related data set.

## 4.3 Tweet Analysis in the Putin Related Set (Spring Collection)

We have collected user timelines (message streams) for the users mentioned above. In total, timelines for 541 users were collected, but for the rest we could not collect tweets. Overall, 593411 tweets were collected. Of those, 127294 were retweets of an earlier tweet. Some of the tweets contain coordinates, attached to them in the 'geo' field. There were 7194 such tweets, sent by 48 different profiles.

Table 3 presents countries, extracted from these tweets, from which the (re)tweets were sent. The countries were matched against coordinates using reverse geocoding.

Table 3: Countries presented in the data set

| Country | Count | Country | Count |
|---|---|---|---|
| USA | 2979 | Nigeria | 17 |
| Russia | 1983 | Spain | 12 |
| Ukraine | 1154 | Germany | 11 |
| South Africa | 304 | Austria | 8 |
| Philippines | 140 | Mexico | 6 |
| Brazil | 119 | Ghana | 4 |
| France | 105 | Vietnam | 1 |
| Canada | 97 | Belgium | 1 |
| China | 78 | South Korea | 1 |
| Belarus | 37 | UK | 1 |
| Netherlands | 32 | Kazakhstan | 1 |
| Italy | 26 | Myanmar | 1 |

Figure 5 shows these latitude/longitude points plotted on the map. 42 profiles have tweeted all geo-coded tweets from one country, six profiles have posted tweets from different countries. @MedvedevRussia has posted tweets from Kazakhstan, Myanmar, Belarus, Russia, Vietnam, South Korea, and China. Two users posted tweets from 3 countries, and three profiles posted tweets from two different countries.

Figure 5: Coordinates of tweets on the map

## 4.4 Profile and Tweet Types in the Erdogan Related Set (Autumn 2015 Collection)

In total there were 199 profiles related to Recep Tayyip Erdogan, the Turkish president. Erdogan related profiles were classified using the Putin classification as a basis. However, the analysis resulted in fewer number of profile categories, and they differed in terms of some characteristics. Figure 6 displays the distribution of the Erdogan related profiles in this categorization.

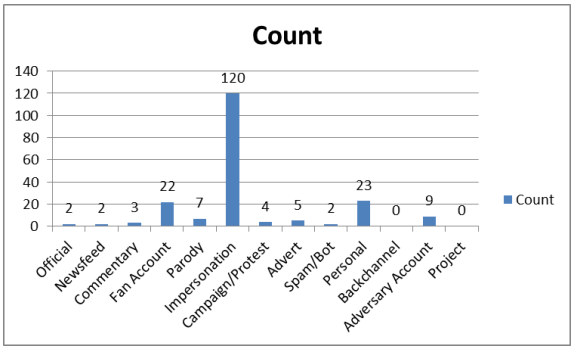


Figure 6: Profile Category Distribution for Erdogan profiles.

As may be seen from Figure 6, no backchannel or project profiles were found in the data set. The juxtaposition of the classes according to their profile frequency is as follows: impersonation, personal, fan accounts, adversary accounts, parodies, adverts, campaign/protest accounts, commentaries, newsfeeds, officials and spam/bots. The allotting of the accounts among the categories were different than Putin accounts; and the most common language was Turkish with 152 profiles, followed by English with 25 profiles, German with 11 profiles, Dutch with 5 profiles, Arabic with 4 profiles and French with 2 profiles.

There are 2 verified profiles representing him: @rterdogan_ar and @RT_Erdogan. There were 2 newsfeeds (@Erdogan_English and @tayiperdogann), and 3 commentary profiles (@RecepTayipE_53, @RajabErdogan_AR, @TayyipErdoganCB). The 22 fan profiles found in the profile set also included profiles that were created to express personal admiration for Erdogan but did not form a fan community. The 7 parody profiles were as follows: @RecepErdogan_Ar, @Tvetci, @RT_ErdoganSpoof, @cbRT_Erdogan1, @IamRT_ERDOGAN, @Para_erdogan, @CB_ERDOGAN_. 53 of the 120 impersonation profiles were empty without any tweets. The four campaign/protest profiles were established to promote #dershanemolmasaydı, #Hepimiz_Takipleselim and #dvltialiosman hashtags; almost all of their messages were accompanied by these hashtags, if not they communicated related messages. 5 advert profiles were publicizing websites such as http://www.gamelnet.com/, http://www.nobleandroyal.com/ and http://www.habera.com/. The two spam profiles found in the profile set were @jzischke and @agacili; @agacili profile were increasing the mentions of @CoolRuhikiziniz profile that is already suspended. There were 23 personal profiles without any posts about Recep Tayyip Erdogan; and 9 adversary profiles.

## 4.5 Number of Namesake Profiles for the Entire G20 Data Set

The data shows that all G20 leaders have profiles created (mis)using their digital identity. Table 1 displays the number of Twitter profiles using at least some part of their digital identity. As may be seen on the table, Narendra Modi, David Cameron, and Barack Obama have the highest number of profiles in descending order. The increase in Putin profiles from 579 to 786 demonstrates the continuity of this phenomenon. However, since spring 2015 collection, 67 Putin accounts were closed, 42 of which were suspended by Twitter from the first Putin profile set. 34 of the suspended accounts were personal accounts of type namesake. This points out

that Twitter is following its policy on impersonation, and keeps accounts that are expressing opinions on a public person.

Randomly selected 10 percent of the G20 accounts (659 profiles) were grouped taking the Putin classification as basis. 40 of these profiles were excluded from categorization as they were found irrelevant to the subject person. The resulting classification of this hybrid set is shown in Figure 7.

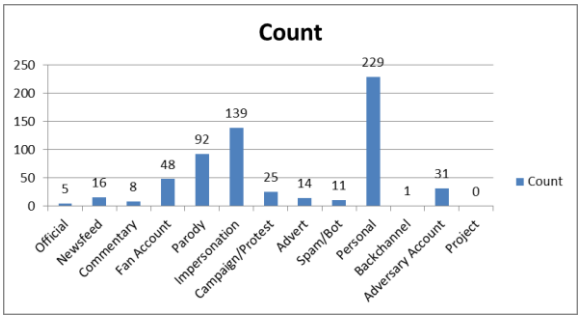


Figure 7: Profile Category Distribution for Hybrid Random Profile Set.

# 5 RELATED WORK

Approaching Twitter's usage from the angle we have in this paper is rare. There are, however, many papers that are relevant in understanding the 'hundreds of Putin and Obama phenomenon'. One of the first papers that categorised users is (Java et al., 2007). The authors identified three major profile/user categories, information source, friends and information seeker. Certainly, the most followed non-verified profiles like @PutinRF are information sources for the followers. Those profiles that follow each other (see Fig 3.) could be understood as 'Friends'. It is obvious that in case of Putin, Erdogan or Obama there are also political reasons for establishing profiles. A thorough analysis concerning the use of Twitter in recent Russian politics is (Spaiser et al., 2014), although it does not contain directly the analysis of the 'Putin profiles'. In (Bruns and Highfield, 2013) the authors discuss the use or Twitter in political campaigns in Australia and in (Peterson, 2012) Peterson discusses the use of Twitter in US political campaigns. Another category we found are parody profiles. In a recent paper (Highfield, 2015) Highfield discusses the parody profiles in Twitter. This analysis is relevant especially for those profiles that are tagged as parody, but also for other profiles that contain jokes around and about the leaders. A part of the profiles we found are clearly sexually motivated. A recent article (Reynolds, 2015) discusses straight men seeking men and the formation of sexual identity in virtual space. As concerns wider categorisation of Twitter profiles, we found (Barash and Kelly, 2012) that introduces several categories, but based on the used hashtags in the tweets. Another work (Procter et al., 2013) categorises profiles in the context of riots in UK. The authors used circa 10 different profile categories, like riot profiles, bloggers, journalists, activists, police profiles, politicians, etc. They also categorise police profiles into many subcategories based on whether they are run by a local police or higher tiers of the police forces.

# 6 CONCLUSIONS

We have analyzed in this paper Twitter profiles that carry in their screen name or profile name some parts of the digital identity of a G20 leader. The first collection was performed in spring 2015, where we only collected data related to Vladimir Putin. In Nov. - Dec. 2015 we collected another data set, where in addition to Putin we collected profiles related to other G20 leaders. We found over 6000 profiles from Twitter that qualify. The latter collection shows that all important leaders get Twitter accounts that (mis)use their digital identities.

In the spring 2015 collection we included two verified profiles of the Russian president @KremlinRussia and @KremlinRussia_E. We added the two verified profiles of Prime Minister Medvedev and that of president Obama to see who follows whom. Thus, we had 5 verified profiles in the data set and 577 non-verified. We categorized the profiles according to the information on profile bios, and the content of the tweets, profile names and profile pictures. The resulting classification contained categories official, newsfeed, commentary, fan profile, parody, impersonation, campaign/protest, advert, spam/bot, personal, backchannel, adversary profile and project/research. Most profiles fell into the category personal or impersonation.

Looking at the impact of the many profiles based on the follower numbers it is clear that it is rather small in the spring 2015 collection. The average number of followers was 654 among those that have less than 10000 followers. There are only 13 non-verified profiles in that data set that have more than 10000 followers. Based on the content of the tweets one can argue that most of those 13 profiles have a neutral or positive sentiment towards president

Putin. The two verified Russian profiles controlled by Kremlin have together 5.76 million followers, out of which 1.43 million are common. Thus, the number of distinct followers of Kremlin-controlled Russian Twitter profiles is over 4 million. The corresponding verified English profiles have 0.9 and 0.3 million followers, out of which 0.17 million are common. Thus circa 1 million users follow the English verified profiles controlled by Kremlin. Altogether, there are 4.84 million distinct users who follow one or more of the four verified, Kremlin-controlled Twitter profiles. Thus, compared to the other profiles in the data set, these four profiles have the strongest influence, if we measure this by the number of followers in our data set.

Apart from the follower analysis, we created a tentative categorisation of the Putin related profiles. To the best of our knowledge this is the first attempt in this direction, i.e. analysing Twitter profiles around one famous person. We arrived at twelve tentative categories. In practice all of them are known from the earlier research. We did not yet perform a thorough analysis of the contents of the collected tweets. It would shed more light especially to the nature of almost 300 'personal' profiles. This is an item for the future work.

The autumn 2015 data set shows that Putin has gathered 200 more related accounts in half a year. Why and what kind of profiles is for further study.
The tentative categorisation developed for the spring 2015 data set concerning Putin related account seems to be valid for the Erdogan related profile set as well.

As concerns the theories that might explain the phenomenon, there seems to be no one theory that would explain the 'hundreds of Putins and Obamas phenomenon' on Twitter. Some theories explain a part of the profiles and the activity on them; some profiles are clearly politically motivated, some are parody profiles, some fan accounts etc. The online disinhibition effect and the anonymity's enabling power for free speech were seen in many of the parody, commentary, adversary, impersonation and campaign/protest accounts. In addition advert and spam/bot accounts were examples of malicious anonymity usage. Over 50 profiles were created during the elections in Russia 2011-2012 and 74 became silent before mid-2012. Thus, they are most probably campaign profiles. Most geo-coded tweets came from USA in the spring 2015 data set, but this cannot be generalized to the entire data set, because only one per cent of the collected tweets had the coordinates in 'geo' attribute. Many profiles had location in the profile, but we did not yet match this with the tweets or their content. The languages used on the profiles were mostly Russian or English in the spring 2015 data set. In the autumn 2015 data set it varied more, because we had also Saudi-Arabia, Japan and Korea included into the data set.

The study was useful in terms of improving the understanding of social media culture, and usage of public identities on online social networks. In the future we will delve deeper into the autumn 2015 data and will also analyse the follower set relations for the famous persons.

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