Assessing the likelihood that Brian Boquist created an Ashley Madison Account

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Abstract

In this note, we examine an account found in the 2015 Ashley Madison data dump and determine that there is high probability that the account was created by Brian Boquist. The Oregon State Senator has made news recently by making threats to fellow members of Oregon Senate, saying that "hell would visit them personally." He has since made several public statements justifying this language by refering to Catholic faith, including statements in a lawsuit which attest to faith, consequences of sin, and the duty to call out the sinner. Even with generous assumptions, we estimate that the probability that someone other than Sen. Boquist created the account is less than 1%.

1 Background

In June 2019, the Democratic Majority in the Oregon Senate attempted to pass a cap-and-trade bill. Oregon Senate requires a quorum, so Senate Republicans declared their intention to leave the capitol and prevent the legislative session from moving forward. Oregon Governor Kate Brown indicated that she would be using the powers granted by the Oregon Constitution to "compel" the senators to return: up to and including sending Oregon State Police after the senators. Sen. Boquist, a military veteran who is known to carry guns, responded with the statement "send bachelors, and come heavily armed." He also told Senate President Peter Courtney that "If you send the state police to get me, hell is coming to visit you personally." The Republican senators fled to Idaho and did not return until the cap-and-trade bill was dropped from the agenda. Upon returing, an assessment was made that the threats made by Sen. Boquist should be taken seriously. A senate committee decided to require that Boquist give 12 hour notice before visting Salem.

Boquist then made statements justifying his language : "send bachelors..." is simply an old military expression. The statement to President Courtney, however, came from their shared Catholic faith. Boquist made several references to his faith in memos and in a lawsuit filed against Courtney and others [1].

In 2015, hackers orchestrated a well-publicized data dump of the Ashley Madison website. Ashley Madison did not require users to use their names, but did keep track of credit card data. At the time, many of the users were 'doxxed' because their names were on credit card transactions, others were 'doxxed' because they had short-sightedly used their identifiable work email address when

setting up the account. However, a large portion of the user accounts remained unlinked.

Despite the fact that accounts may not contain names, or identifiable email addresses, some accounts can be linked with high probability to individuals: The date-of-birth, zipcode, height, wieght, and security question and answer in some cases can specify the individual uniquely with reasonable probability.

An account exists in the Ashley Madison database that matches Sen Boquist's zipcode, date of birth, place of work, (by our estimation) approximate height and wieght, and most significantly, his high school. We will argue first that there is little probability that this account was created by someone else. Next, we will argue that this is an issue that should be brought to the attention of, at the very least the court hearing the case [1], and perhaps even the general public.

2 The account

We grepped the file

```
‘‘am_am.dump’’
```

using python. This file is the dump of an SQL database. Reading the file as a string, the headers are given in positions [1003:3140]. The account in question occurs in position [2774910130:2774910456] and is the following string :

```
(8152436,’2011-01-24 02:57:40’,0,
’2011-11-06 01:09:20’,0,2,2,NULL,NULL,0,
NULL,NULL,NULL,NULL,NULL,NULL,
’Salem’,’97338’,38,44.8440933,-123.4564094,1,
NULL,NULL,NULL,2,’1958-10-20’,’Hey’,1,
79380,178,4,1,0,1,2,’
|7|40|38|36|28|42|43|’,’’,’’,’
|30|38|42|44|45|18|48|49|10|11|’,’’,
’’,’|48|47|56|57|67|70|73|’,’’,’’,
NULL,2,’Tillamook’)
```

With this in hand, we grepped the file

```
"aminno_member_email.dump"
```

and

```
"aminno_member.dump"
```

and determined that the email address “TrueOregon@aol.com” was associated to account 8152436 as well as the ip address ’206.212.234.92’ and the username ’paradise06’.

The zipcode 97338 is given as Boquists on numerous documents going back well before 2011, and including the complaint [1].

It is crucial to note that the final two fields in the first table are security question and answer: Security question 2 corresponds to name of high school. (This can be confirmed by inspecting other answers as well as other sources on the internet.) The fields containing “79380” and “178” are wieght and height in metric units.

3 Analysis of the account

We begin with some extremely rough ways to estimate the probability that this account was created by someone other than Sen. Boquist as a warmup and then attempt to build a more thorough model. We will assume that the data given is not falsified. While certainly some accounts were created with falsified information, the motivation for intentionally matching Boquist's data is unclear. It is also remotely possible that someone chose the data at random: Perhaps the security question was correct, but the birthday or zipcode was chosen and random. We're going to ignore these possibilities.

3.1 First rough estimation: birthdate and current zipcode

Quickly searching cf. [2] we find that as of 2010, there were 20045 people in the zipcode, of which approximately 9722 are male. More searching cf. [3] turns up 2016 data that 12.2 % of males are age 45-55 and 11.3 in the next age group 55-65. We will use this number to guess that there are approximately 12 percent of the 9722 males are born in this decade, that is, about 1167 males born in this decade. Dividing this by 10 years in the decade, for simplicity, we would guess that about 117 male residents of zipcode 97338 were born in 1958. Treating this as a Poisson distribution with $\lambda = 117/365$ we conclude there is a 72.5% chance that nobody else matches this birthday/zipcode criteria.

3.2 Second rough estimation: birthdate and Tillamook High School

Recent data says the enrollment and Tillamook high school is around 600. We can find data from the 1990s in Oregon Dropout Rate Reports with Enrollment as high as 784. We will be generous, and allow for 800, or approximately 200 per class, and assume the four year dropout rate was about 20%. See [4]. So 160 is a generous upper bound on the number of graduates per year. Dividing by 2, for males, we get about 80 males per year. Treating this as a Poisson distribution with $\lambda = 80/365$ We conclude there is a 80% chance that nobody else matches this birthday/high school criteria.

3.3 Combining birthday with geographic mobility

Already the data suggests there is reasonable likelihood the account belongs to him. However, the most significant piece is the combination - we need to estimate the probability that someone who went to high school in Tillamook ends up in zipcode 97338. To describe our model, we will use the number 80 above as the number of males in the 1977 graduating class, and consider an individual in this roughly 80. We want to combine the independent probability that this individual had both Boquist's birthday, and resides in Boquist's zipcode 35 years later.

Tillamook is not immediately close to Dallas, they are separated by about an hour twenty minutes drive and over 60 miles. Note that this is roughly the same distance from Tillamook to Hillsboro, which is a well-populated western suburb of Portand. So the geographic radius centered at Tillamook that includes Dallas would also include significant Portland metropolitan population. (The total

Portland metropolitan population is estimated at 2.7 million.) However this might not be fair; Portland is culturally different from surrounding rural Oregon areas, so one may expect more mobility between places like Tillamook and Dallas than between Tillamook and Portland. So we will be generous and exclude the entire Portland area. (In fact this is even more generous, in 35 years, certainly many Tillamook high graduates have left the state altogether.) Tillamook is surrounded by a ring of counties with similar demographics. Polk County, which holds Dallas, is one of the two 'kitty-corner' counties in the ring that doesn't share a border with Tillamook County. One of these counties in Washington County, which is the largest populated because it contains Hillsboro. We will exclude this county. To be rough, we add the population in this ring of counties, including Tillamook, excluding Washington, and assume, ham-handedly that the Tillamook high school population is dispersed randomly over this ring of counties. That is, we take Clatsop, Columbia, exclude Washington, Yamhill Polk and Lincoln. Quick wikipedia use (which uses 2010 census data) gives about 330,000 people in this area. Considering that only 20,000 are in 97338, we have only about 6% probability that a given individual would land in 97338 zipcode. So the probability that someone who graduated Tillamook High School in 1977 and then lived in 97338 and also had an October 20th birthday is roughly 0.0166%.

Next we ratchet this number down smaller, by considering weight given. We will again be very generous here, and assume only that the account creator is not obese. (The metric conversion gives the account creator a healthy weight of 175 lbs.) Using the statistic that 34% of Oregonian in the age group 45-64 are obese, we say that this would rule out a third of potential candidates. In fact the given weight is well below the median, but we will give them room to fudge their profile stats. (It's also unclear, without more work how much the obesity depends on other factors.) So we multiply the percentage 0.0166 by 0.67 and get about a 0.011% probability of a match. At this low number, the Poisson distribution scales nearly linearly over 80 samples, so we can say, quite generously, that there is a 0.9 % chance that one of Boquist's male classmates shares his zipcode birthdate, and is also not obese. If we assume that the only other option is that Boquist created the account, this gives us over 99% confidence.

3.4 ignored factors

We make a few comments about factors we ignored.

3.4.1 geocoordinates

It's unclear how Ashley Madison gathered this data, and it's also unclear how accurate the data would be from a desktop computer in 2011. We don't know if the account was set up via a desktop or a mobile phone. According the Google Maps, the given geocoordinates are smack dab in the middle of nowhere, a few yards off perhaps a logging road in Polk County. There are numerous reasons why someone creating an account would do so away from their own home or work, and we don't know how this was collected, so we choose to ignore this.

3.4.2 email address

While we do know that Brian Boquist uses AOL.com (he offers 'boquist@aol.com' on his filed complaint), using AOL is to be expected for someone born in 1958. While the name 'TrueOregon' does fit the personality of an Oregon politicians who considers themselves a patriot, in our opinion, this isn't a strong enough factor to try to quantify.

3.4.3 ip address

This appears to only roughly correspond to geography. We have no evidence this was used by a particular business or individual.

3.4.4 Location is 'Salem'

Technically, Salem is not Dallas, and Salem is where Boquist fulfills his duties as State Senator. However, someone using such a website is likely to seek partners in a larger metropolitan area - Dallas is a smaller community, and Salem is the obvious choice.

3.4.5 Bayesian priors

We are simply assuming that Boquist is equally likely to create an Ashley Madison account as any of his high school classmates.

4 Boquist has made his practice of Catholicism a public issue

In a lawsuit [1] aimed and Courtney and others, Boquist claims that he is being punished for using the phrase "hell is coming to visit you personally."

The lawsuit includes

> 4.Plaintiff alleges the Defendants are blocking the Plaintiffs practice and expression of religious beliefs stated on the Floor of the Oregon State on July 19, 2019 that are protected under the First Amendment of the United States Constitution. [sic]

Boquist's statement was not a threat, he argues, but a theological statement of faith. The complaint also discusses the fact that Peter Courtney and Boquist attend the same Catholic church:

> 25. Prior to August 2018, to build and maintain civil relations, the Plaintiff and Defendant Senate President Peter Courtney met routinely at Ike's Coffee Shop near the Oregon State Capitol, sometimes nearly weakly. [sic] Both have routinely discussed their catholic religious faith believing in Heaven, Purgatory, and Hell. Those discussions included the fear of Defendant Courtney that a certain Deacon, or Priest, will deny him communion, if not excommunicate him, damning him to Hell for eternity....The weekly Mass recited Penitential Act says we are held accountable for our thoughts and in my words, in what I have done and in what I have failed to do....Catholic

> Doctrine also says to call out the sinner... 32.The Plaintiff, a fellow practicing Catholic with Defendant Courtney, does in fact believe President Courtney's soul is completely lost now.

It is clear that Boquist's catholic faith is an essential part of the lawsuit: The use of the word "Hell" is by someone who believes in Hell and fears that his colleague's soul may end up there.

Certainly it is well understood that adultery is sinful in the Catholic religion, and punishable by damnation as much as any other sin. But unless Boquist went through a temporary weak patch in his faith for which he since confessed, a reasonable person would have trouble reconciling an account created for the explicit purposes of adultery and a deep belief in the consequences of sin.

References

[1] https://www.documentcloud.org/documents/6224280-BOQUIST-v-COURTNEY-ET-AL.html

[2] https://www.zipdatamaps.com/97338

[3] https://www.areavibes.com/dallas-or/demographics/

[4] https://www.oregon.gov/ode/reports-and-data/students/Documents/dr9798.pdf