DETECTING GROOMING BEHAVIOUR ON SOCIAL MEDIA

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@halani

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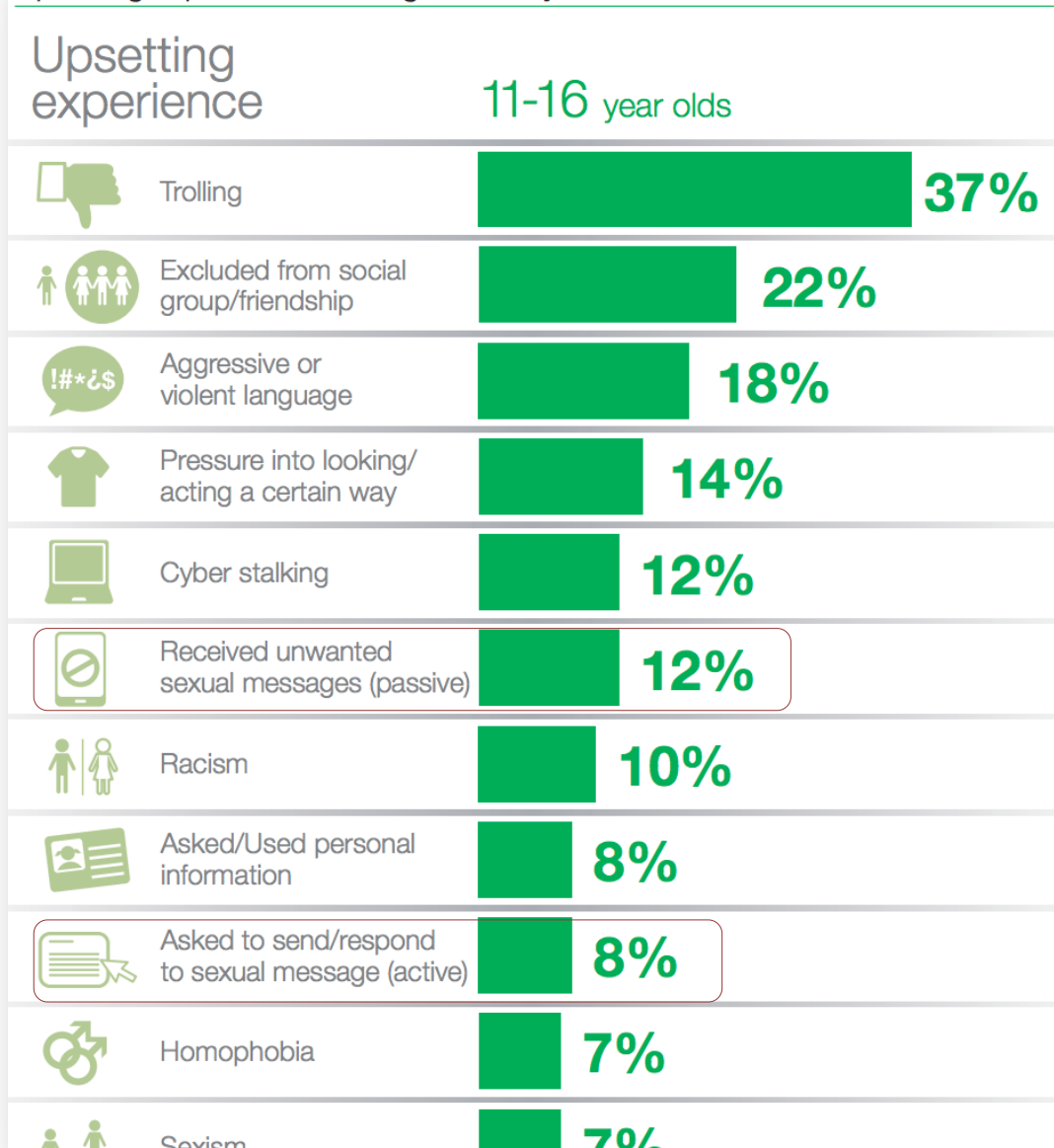
Social Media and Policing, Open University, 8th Feb 2017

CHILD GROOMING

Premeditated behaviour intending to secure the trust of a minor as a first step towards future engagement in sexual conduct.

Choo, K-K R. Responding to online child sexual grooming: an industry perspective, Trends & issues in crime and criminal justice, no. 379. July 2009

"findings show that approximately 190,000 UK children (1 in 58) will suffer contact sexual abuse by a non-related adult before turning 18, with approximately 10,000 new child victims of contact sexual abuse being reported in the UK each year."

NSPCC

Upsetting experiences amongst 11-16 year olds[12]

Upsetting experience	11-16 year olds
Trolling	37%
Excluded from social group/friendship	22%
Aggressive or violent language	18%
Pressure into looking/ acting a certain way	14%
Cyber stalking	12%
Received unwanted sexual messages (passive)	12%
Racism	10%
Asked/Used personal information	8%
Asked to send/respond to sexual message (active)	8%
Homophobia	7%
Sexism	7%

NSPCC

*"50% of all 11 and 12 year-olds in the UK use a **social networking** site, according to our research. This is because it's easy for children to access sites intended for older users."*

7 in 10

12-15 year olds who go online have a social network profile

1 in 5

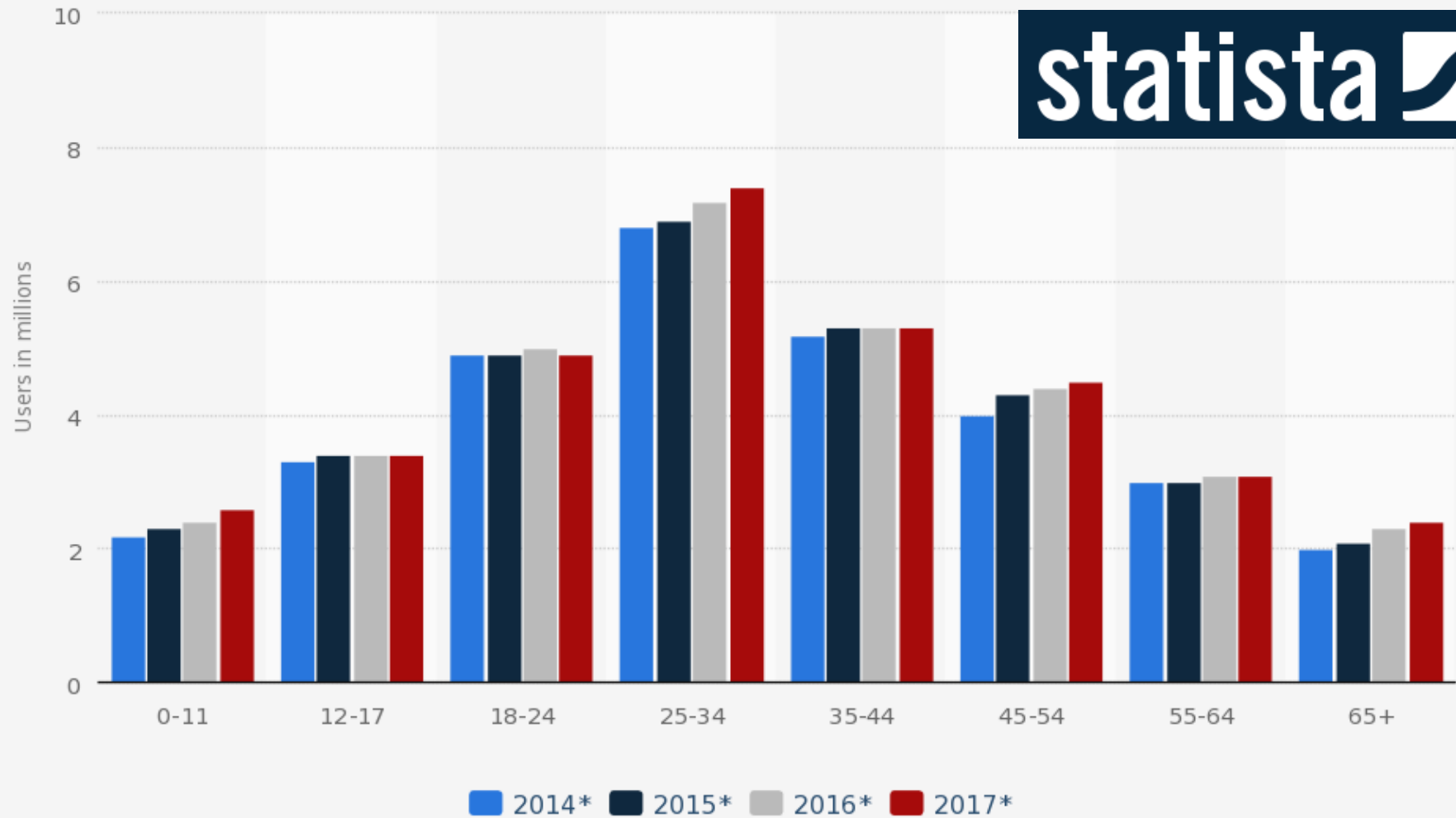8-11 year olds who go online have a social network profile

1 in 20
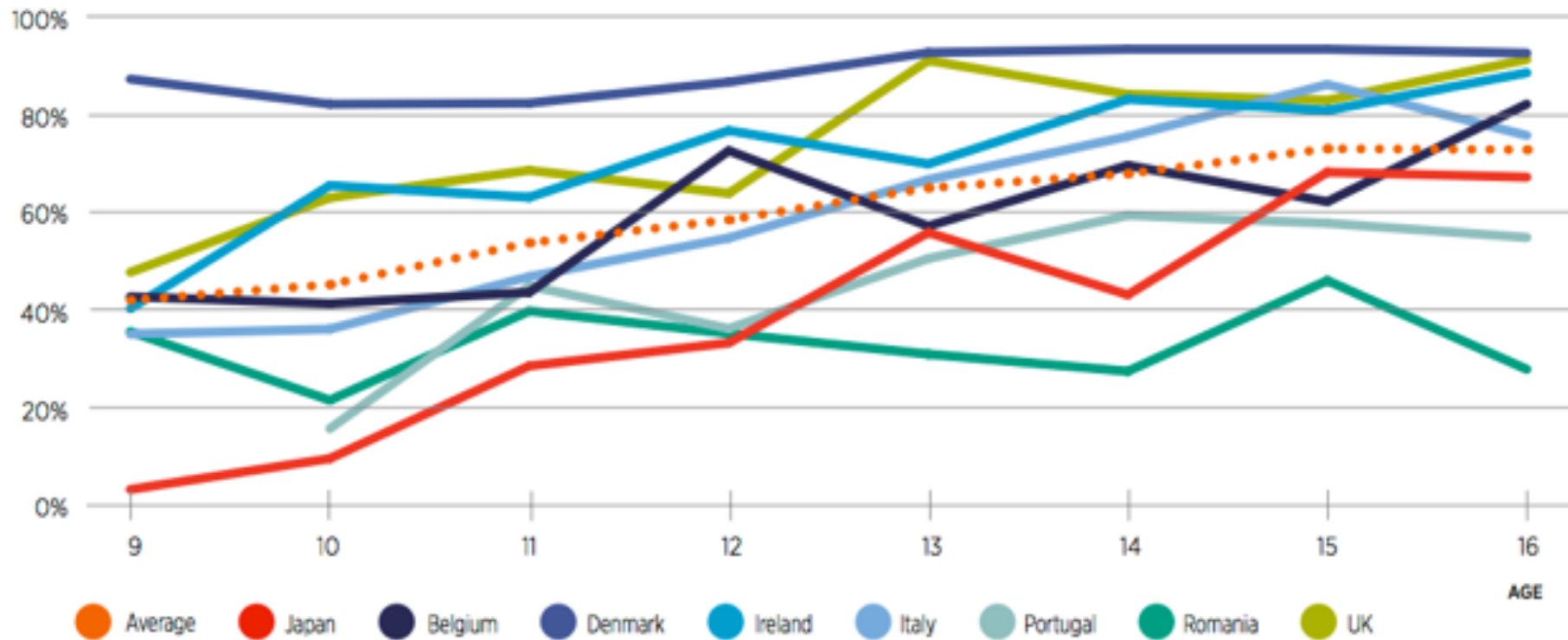
5-7 year olds who go online have a social network profile

Number of Facebook users in the United Kingdom (UK) from 2014 to 2017, by age group (in million users)

Users in millions

Age group	2014*	2015*	2016*	2017*

Figure 3-2-2 **Percentage of child mobile phone users who have a smartphone by age and country**
(% of children who use mobile phones)

Legend: Average, Japan, Belgium, Denmark, Ireland, Italy, Portugal, Romania, UK

3. http://europe.wiki.nmc.org/BYOD

Children's use of mobile phones - A special report 2014.

http://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/GSMA_Childrens_use_of_mobile_phones_2014.pdf

ONLINE GROOMING

How does grooming work online?

Grooming is about building a relationship with a child in order to later abuse them. This can be far easier online.

☐ Games, social media and chatrooms enable people to make contact with children to try to groom them.

☐ They can create multiple online identities and even pretend to be children and young people to trick real children into chatting and sharing.

☐ They can find out a lot about individual children before they make contact by looking at the things the child has posted.

☐ Using this information they can target children who are particularly vulnerable and carefully plan what they will say and show an interest in.

☐ They can also contact lots of children very quickly in the hope that one will respond

CEOP
A National Crime Agency command

THINK U KNOW
.co.uk

https://www.thinkuknow.co.uk/parents/articles/Online-grooming/

SIGNS OF ONLINE GROOMING

○ **Too good to be true?**
Do they share all of your interests and give you lots of attention? Are things moving pretty fast? We all like attention, but remember abusers will do e... ask you to do anything you're not comfortable y... contact us at CEOP.

○ **Flattery.**
Do they praise pictures on your profile, saying y... feel good about yourself or special. It's harder t... especially careful.

○ **Let's talk about sex.**
They will try to get young people to talk about se... shy online than in real life so talking about sex c... flirty or tries to get you to talk about sex online. '... comfortable with. Remember – it is against the l... and whatever they say, sex between adults and ...

○ **Got any sexy pictures?**
They might ask for sexy pictures and tell you tha... they're asking you for indecent pictures they are... share them with your friends or family if you don...
Find out more

○ **Can we go someone more private?**
Did you meet in a public place like a game or a chatroom? Have they asked to add you on Facebook, BBM, Whatsapp or anything which allows private chat? Private chat makes it easier to start a relationship and build trust with you. Think before adding people to your networks – do they need to private message you or can you keep chatting in a more public place?

○ **Our little secret?**
Abusers don't want other people to know they're chatting to you - because other people, family or friends, may be able to help if things go wrong. They might ask you to keep your chat a secret or say you'll be in trouble if anyone else find out. If someone is making you do things you don't want to do or aren't comfortable with you shouldn't keep it a secret. Tell an adult you trust, phone ChildLine or contact us at CEOP

○ **Mood swings**
People who abuse try to control young people by flattering them and giving lots of attention. If young people don't do what they want - they take that away or suddenly become very nasty. You don't have to do anything you're not comfortable with.

○ **My webcam's broken.**
Some abusers pretend to be a boy or a girl around your age and claim their webcam is broken so you can't see them. Never webcam with a stranger with a broken webcam. Remember – it's easy to record and fake a webcam feed. Just because you think you've seen someone on webcam doesn't mean it's really them!

CEOP
A National Crime Agency command

https://www.thinkuknow.co.uk/14_plus/Need-advice/Online-grooming/

GROOMING IN ACTION

Predator: hey whats up?**...**
Predator: I like your pic, very cute
Predator: so you're in san diego?
13-yr-old-girl: not far
Predator: ok, you like older guys?
13-yr-old-girl: thers nice or bad ppl all ages
Predator: have some pics if you want to see
Predator: do your parents look on your computer?
Predator: so are you by yourself or is someone else there with you?
Predator: so it should just be us, our little secret
Predator: so have you ever snuck out?
13-yr-old-girl: not rlly lol
Predator: yeah, what about tonight?
Predator: think you could sneak out tonight?
Predator: well if the wrong person found out then I'd be screwed
13-yr-old-girl: im not a teller lol
Predator: I know, just wouldn't want your dad to find out
Predator: if you are still up why not sneak out for a few minutes
Predator: but that's the fun of it
13-yr-old-girl: fun to sneak?
Predator: yes
Predator: so your dad doesn't know
Predator: would take a nap but I leave for bible study around 6:30
Predator: I know I'm bad, going to bible study and talking about sex with you
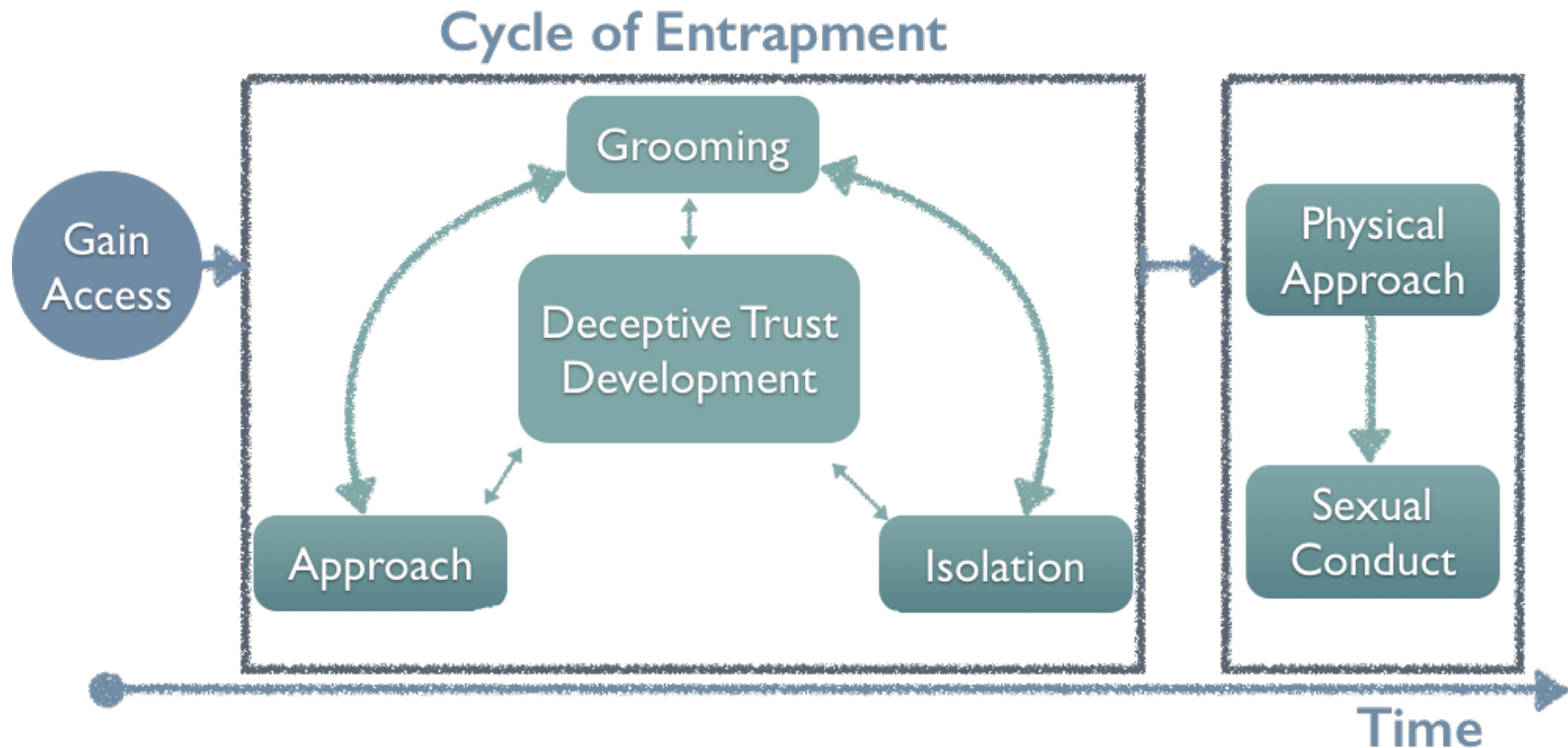**Predator**: yeah, there's nothing wrong with us being friends, we have the same lord remember ;)
Predator: would take me like an hour and a half to get there
Predator: see you in a little while

~700 message

Over a 5 month period

OLSON'S THEORY OF LURING COMMUNICATION (LTC)

Olson, L. N., Daggs, J. L., Ellevold, B. L. and Rogers, T. K. K. (2007), Entrapping the Innocent: Toward a Theory of Child Sexual Predators' Luring Communication. Communication Theory, 17: 231–251

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Approach

Grooming

Isolation

Physical
Approach

Trust
Development

Physical
Approach

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Approach

Grooming

Can we automatically identify these stages?

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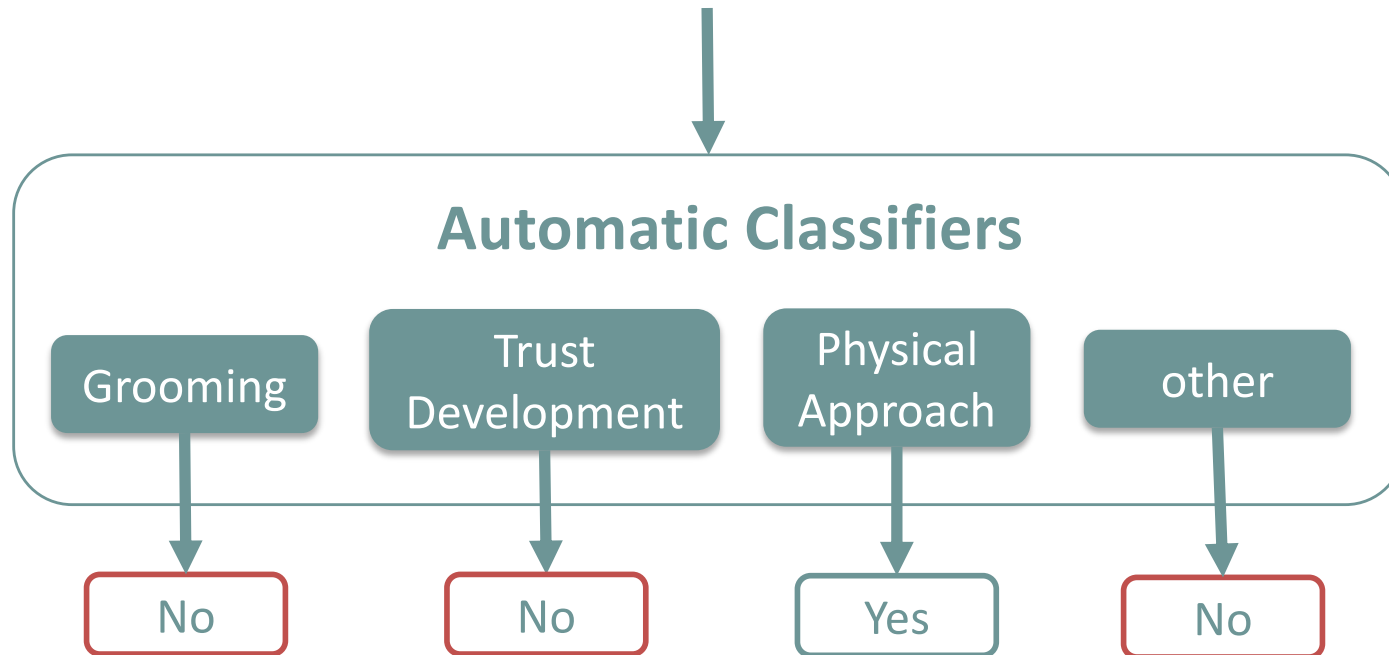**Predator**: see you in a little while

Trust
Development

Physical
Approach

IDENTIFYING GROOMING STAGES

"think you could sneak out tonight?"

Automatic Classifiers

Grooming	Trust Development	Physical Approach	other
No	No	Yes	No

DATASET

- 50 transcripts of conversations between convicted predators and volunteers who posed as minors

- Conversations vary between 83 to 12K lines.

- Each predator line manually labelled by two annotators.

- Annotations labels: 1)Trust development, 2) Grooming, 3) Seek physical approach, 4) Other.

Dataset

	Trust Dev.	Grooming	Phys. Approach	Other
sentences	1225	3304	2700	3304

PROCESSING CHAT TEXT

- **Challenges in processing chat-room conversations**
  - Use of irregular and ill-formed words.
  - Use of chat slang and teen-lingo
  - Use of emoticons.

Generated a list of over 1K terms and definitions:

Chat term	Translation	Emoticon	Translation
ASLP	Age, sex, location, picture	:'-(	I'm crying
AWGTHTHTTA	Are we going to have to go through this again?	o/\o	High five
BRB	Be right back	@_@	I'm tired, trying to stay awake
CWOT	Complete waste of time	('}{')	kiss

ANALYSIS FEATURES & RESULTS

Feature	Description
N-gram	word combinations extracted from text (N=1,2,3)
Part-of-speech tagging	noun, verb, adjective, plural, etc.
sentiment	average sentiment of terms in sentence
length	number of words in sentence
Psycho-linguistic Patterns	62 psycho-linguistic patterns in English (swearing, sexual, agreement, etc.)
Semantic frames	Type of event, relation, or entity in text, e.g., secrecy, desirability, emotion, kinship

Results - with all features:

	Trust Development	Grooming	Phys. Approach	average
Precision	79.2%	87.6%	87.2%	84.7%
Recall	82.3%	88.8%	88.7%	86.6%
F1	80.7%	88.2%	87.9%	85.6%

PUBLICATION

Cano, E; Miriam, F.; and Alani, H (2014). Detecting child grooming behaviour patterns on social media. The 6th International Conference on Social Informatics (SocInfo), Barcelona, Spain.

PROJECT

TRIVALENT – €2.7 EU project (May 2017-April 2010)

Terrorism Prevention via Radicalisation Counter-narrative

> *"Child protection isn't the preserve of specialists; it's the duty of every individual and of society in general"*
>
> CEOP Chief Executive Peter Davies

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