



"Qualitative and Quantitative Methods for Situating Matching Processes: A Comparative Analysis of Algorithmic Development and Dating Practices"

Jessica Pidoux

Postdoctoral researcher - Sciences Po Paris, CEE / Director – PersonalData.IO

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Online Dating Phenomenon Outreach



Online Dating Phenomenon Outreach

Demography:

- 20% of Swiss adults are in a relationship with somebody they met online (OFS, 2018)
- 14% French adults have used a dating app (INED, 2013)
- 46% U.S adults have used a dating app (Pew Research Center, 2019)

Economy:

- The dating industry established in the stock exchange (e.g., The Match Group)

Technology:

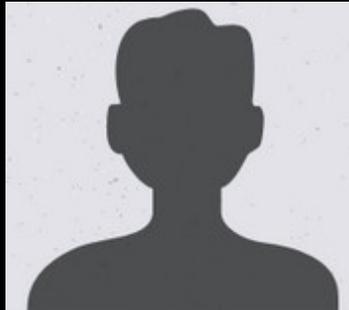
- More than 9,000 mobile dating apps in the app stores (Source: *42matters* statistics).
- Tinder is the most downloaded dating app in the mobile stores: 56M users in 190 countries (Source: *businessofapps* statistics).

Online Dating, Algorithmic Matching?



Reciprocated Matching

Websites & Mobile apps



Lifestyle

Hobbies et loisirs

Danse Photographie Lecture

Sport

Baseball Football Tennis

Préférences culinaires

Voyages

Voyages d'études À la mer Voyages spirituels

Niveau de formation
Maturité gymnasiale, maturité professionnelle, Aucun titre

Langues
Pas d'indication

Tabac
Non-fumeur

Sport
Plusieurs fois par semaine

Animaux domestiques
Pas d'animal de compagnie

État civil
Célibataire

Enfants
Pas d'enfants

Désir d'enfants
Pas d'indication

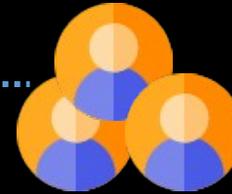
Reciprocated Matching



**9 interviews with
developers in the
industry**

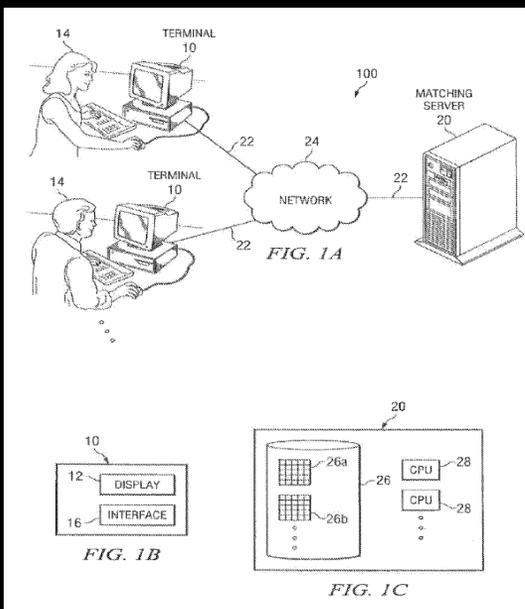


**> 30 Apps
> 80 Affordances
> 300 Variables
Variable input values**



**40 interviews
with users**

Reciprocated Matching



Lifestyle

Hobbies et loisirs

- Danse
- Photographie
- Lecture
- +

Sport

- Baseball
- Football
- Tennis
- +

Préférences culinaires

- +

Voyages

- Voyages d'études
- À la mer
- Voyages spirituels
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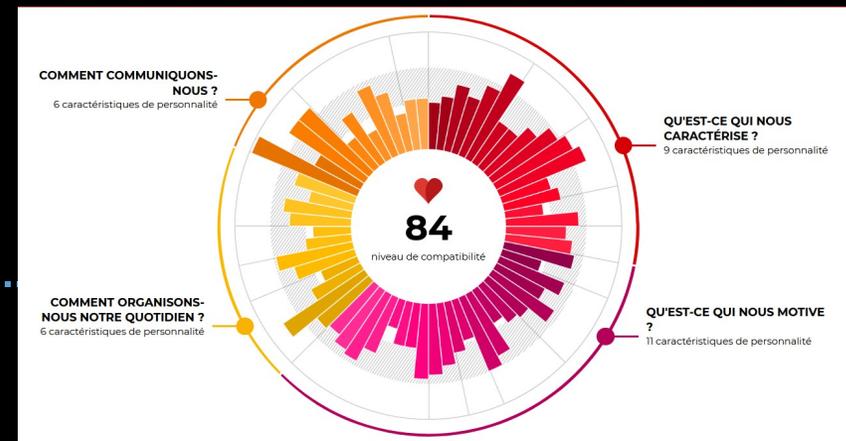
- Célibataire

Enfants

- Pas d'enfants

Désir d'enfants

- Pas d'indication



1. Research Problem



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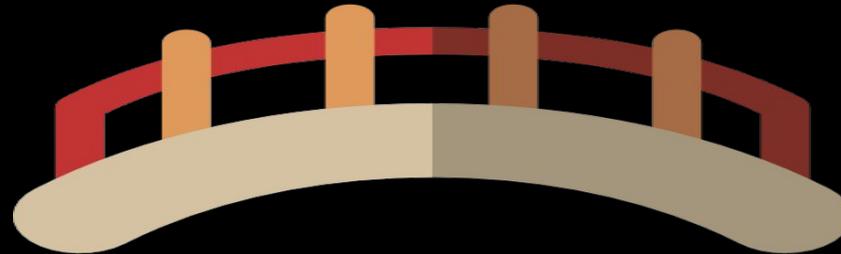
Transformations of dating practices:

- Dating apps favor relationships and couples' socioeconomic diversity (Potarca, 2020)
- Dating is a practice "disembedded" from social spheres (Bergström, 2019)
- Modern sexuality is a new separate sphere of consumption from romantic love (Illouz, 2020)

1. Research Problem

State of the art:

Dissociation between technical design of apps and social practices



Social sciences' perspective:

Looking for the transformations on dating practices and mate choice

Computer science's perspective:

Optimization of dating app recommendation systems

1. Research Problem

Research Question:

In a situation involving entangled relations between human (developers, users) and non-human actors (GUIs, matching algorithmic systems), *how are actors learning to communicate* in order to establish techniques and practices in online dating?

Focus:

What are the *mediations and relations* between the different actors of online dating to commonly establish a human-machine communication process?

2. Contributions



2. Contributions

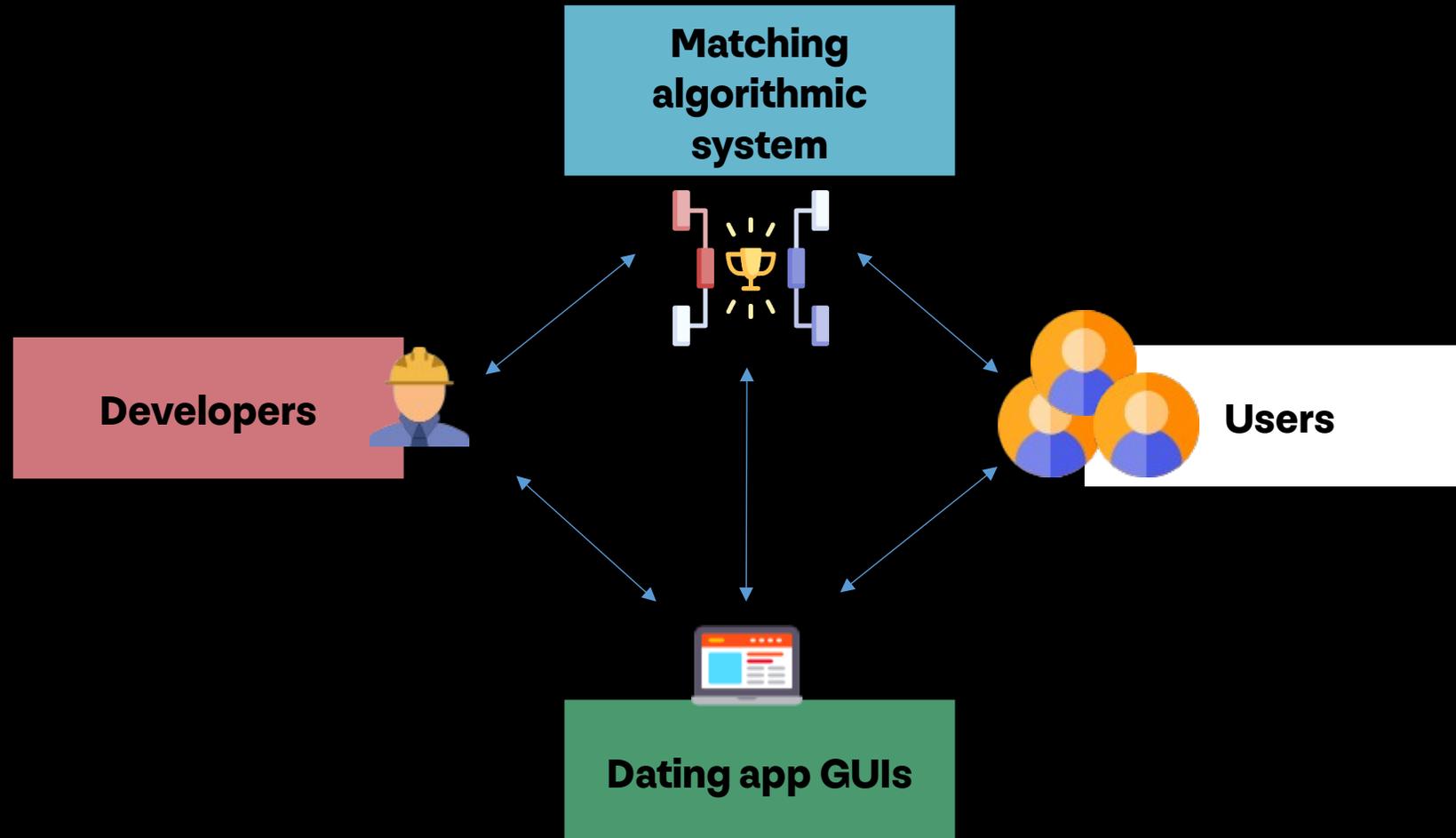
1. A **conceptual and methodological** framework issued from social sciences and data science:

- Methodology for **comparative** observations (for social scientists)
- **Common sense** to data and to dynamic processes (for data scientists)

2. **Empirical evidence** on the conventions that build the reputation economy and mate choice preferences:

- Visibility on the **plurality** of dating practices in the making (sociology of matching)

Matching Learning Process



A **reciprocated view** on the perception and interaction between actors
Which dynamics to observe, and **how**, in matching algorithmic processes

3. Concepts, Methods and Data



3. Methods and Data

Standpoint	Method	Data	Sample	Type
GUIs	<p>Functional Description: “Compass Method” (Boullier, 2003)</p> <p>Hierarchical clustering. Jaccard index (Jaccard, 1901)</p> <p>Descriptive Statistics</p>	<p>84 affordances</p> <p>317 variables</p> <p>80 variable input values</p>	29 platforms (max.)	Quanti + Quali
Matching Algorithmic system	Technical Documentation Analysis (Diaz and Diakopoulos, 2019; van der Vlist, 2016)	Patents, GUI, SAR, ML conference	Tinder case study	Quali

3. Methods and Data

Standpoint	Method	Data	Sample	Type
Developers	Interviews: “Reflexive discourse and implication” (Auray, 2016)	Nine founders and developers	Ten platforms	Quali
Users	Interviews: “Making sense in situ”: (Garfinkel, 1984; Ziewitz, 2017) “A learning couple” (Suchman, 2007) Data coding: “Grounded Theory” (Glaser and Strauss, 2009). “In Vivo” coding (Miles, Huberman and Saldaña, 2020)	40 users	26 platforms	Quali

4. Major Findings

GUIs

Users



4.1 Major Findings Chapter II (GUIs)

“The Dating Market Offer: Programming User Attention and Interaction”



4.1. Major Findings Chapter II (GUIs)

The structure of **perception and interaction** for seducing:

- Affordances: **actions and restrictions** to attract somebody
- Variables of user representation: definition of **attractiveness**
- Input values: **heteronormative** definition of the female's body erotization

International conference paper:

PIDOUX J., KUNTZ P., GATICA-PEREZ D., 2021, « Declarative Variables in Online Dating: A Mixed-Method Analysis of a Mimetic-Distinctive Mechanism », 5, CSCW1, p. 100-132

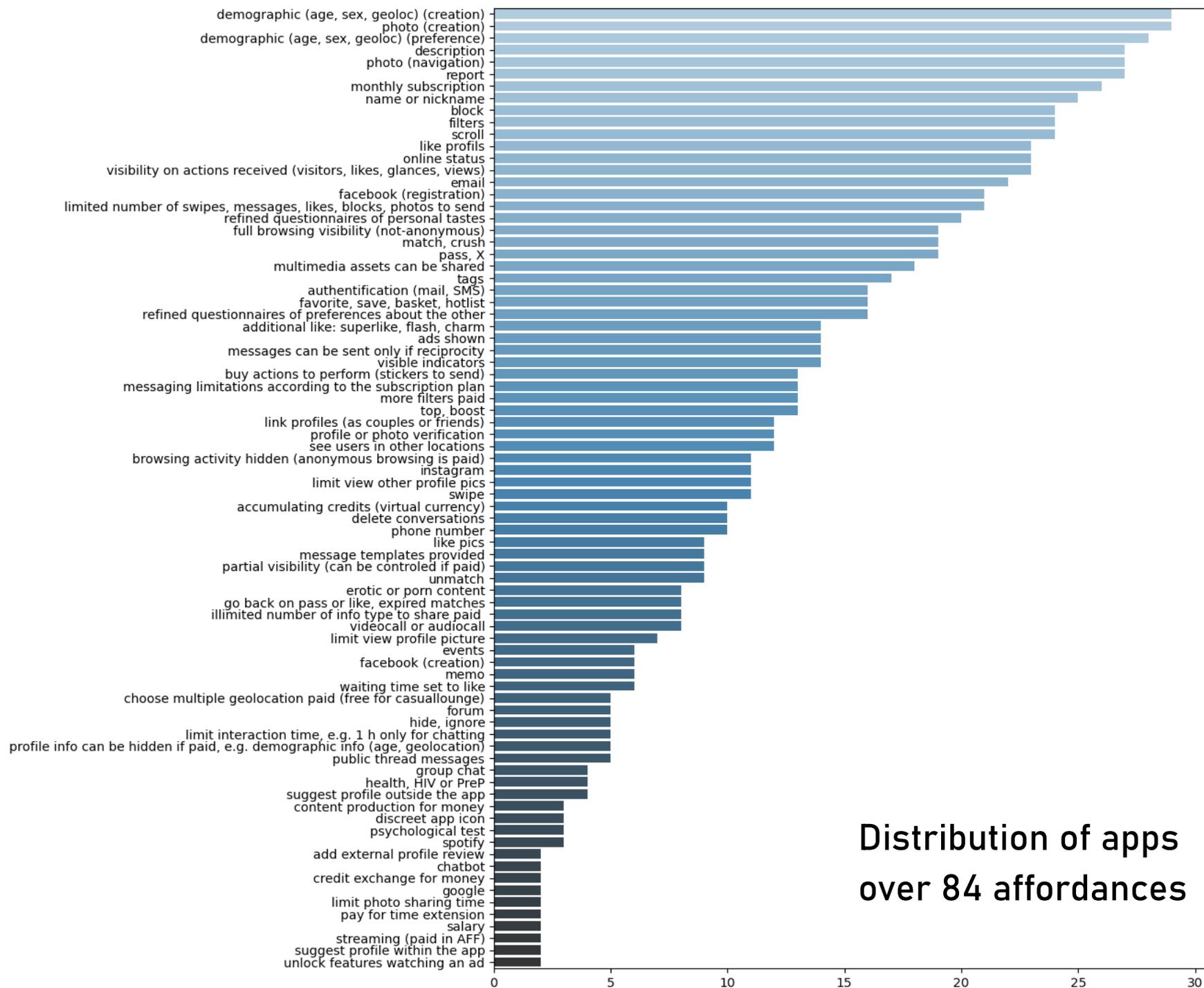
4.1 Major Findings Chapter II (GUIs- Affordances)



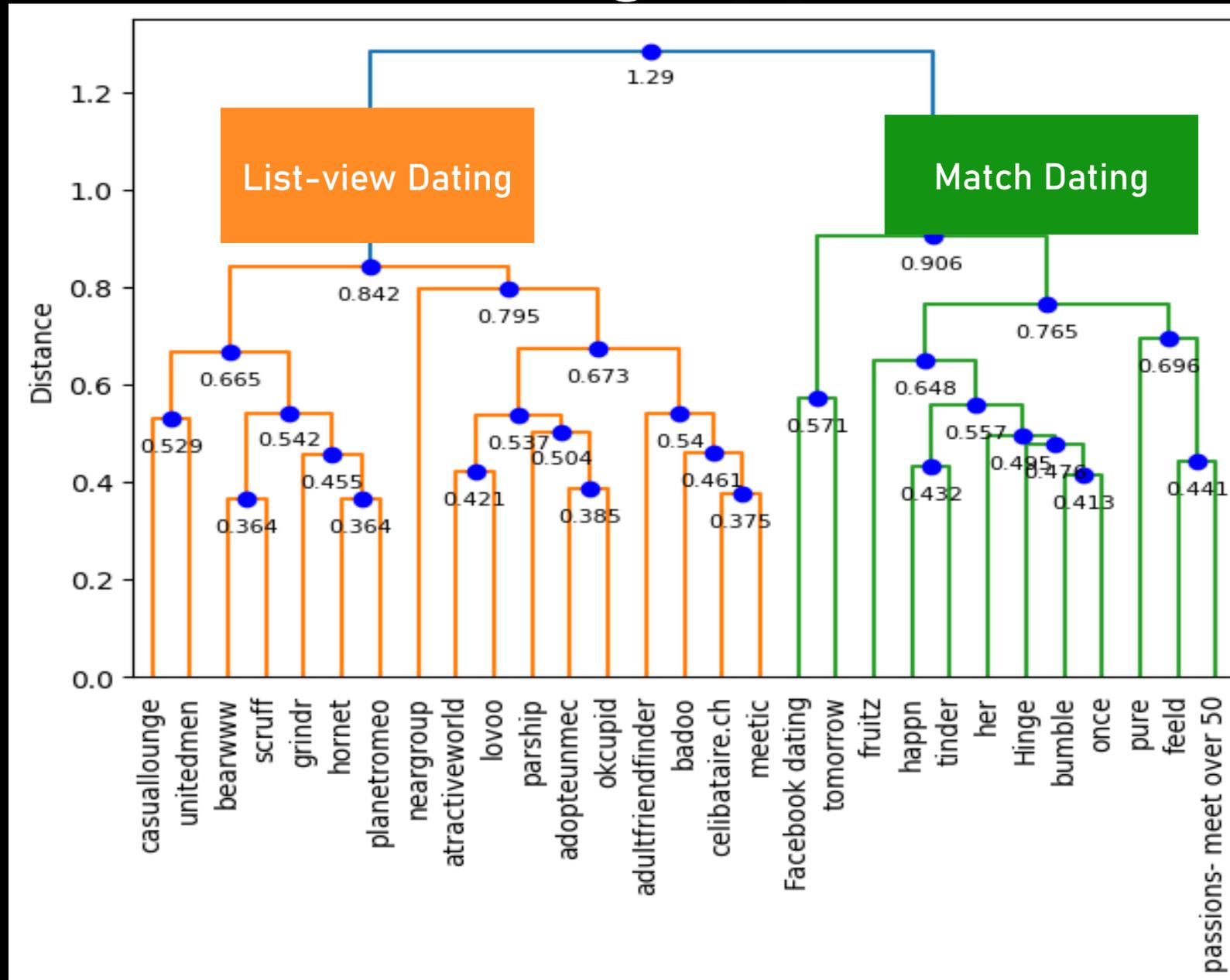
4.1. Major Findings Chapter II (GUIs)

Fine-grained
analysis of online
and offline
affordances

Confirmation and
extension of
previous studies
(Schreurs et al.,
2020; Wu and Ward,
2020; Lin and
Lundquist, 2013)



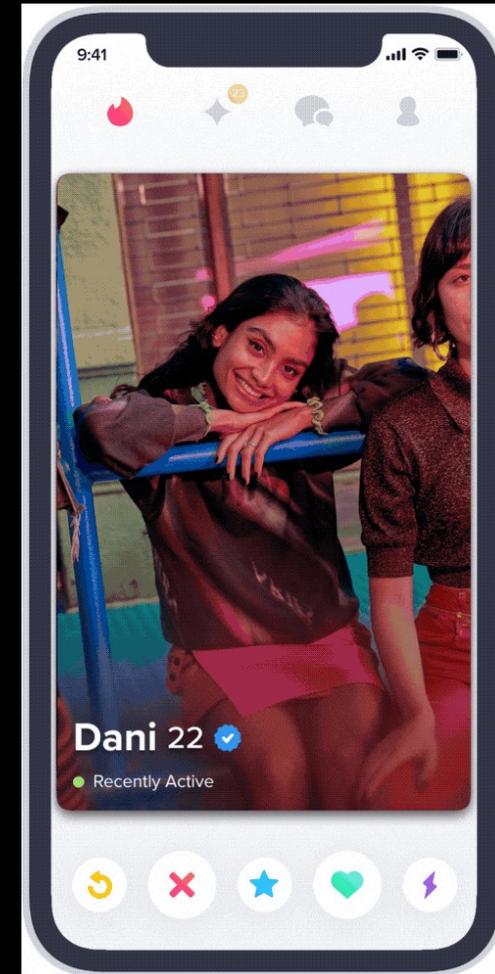
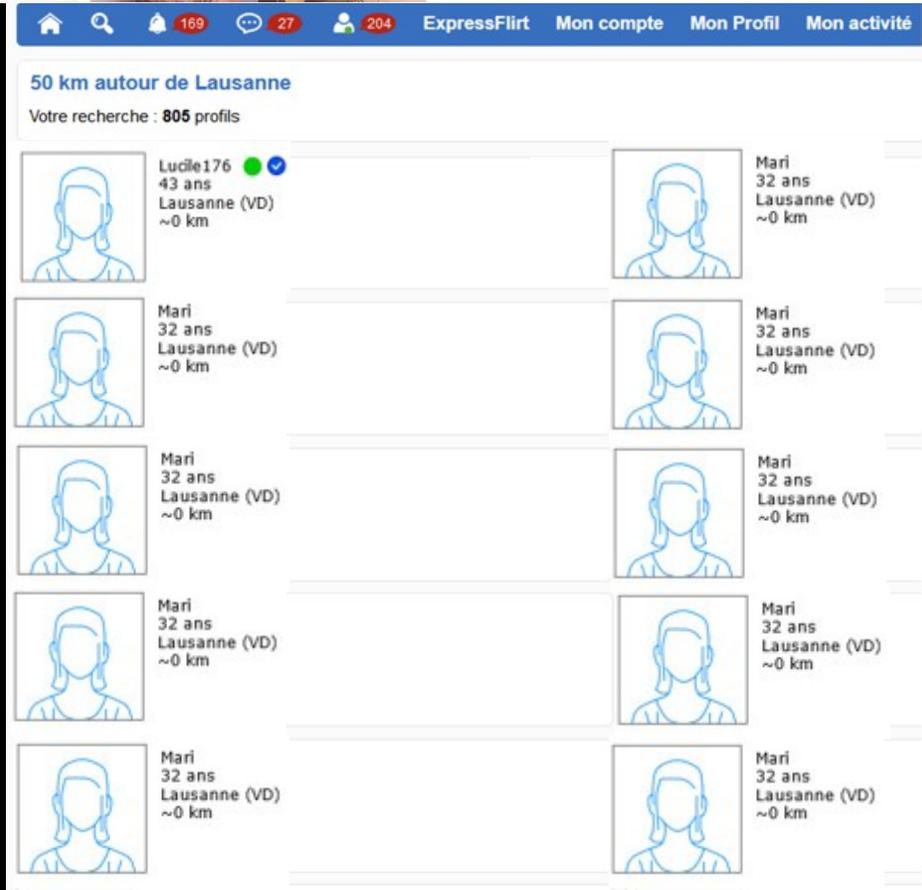
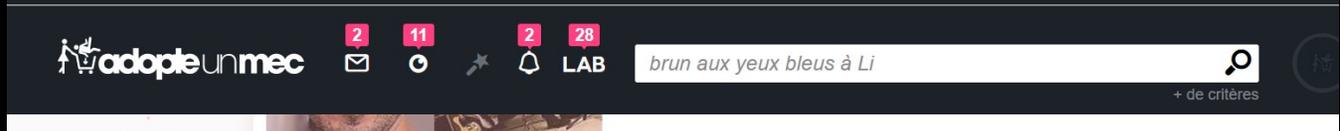
Similarities of Dating App Affordances:



Possibilities and restrictions on how to discover a potential date

List-view Dating and Match Dating:

Nos partenaires et nous-mêmes plaçons des traceurs de fonctionnement et de personnalisation de contenu, ainsi que des traceurs analytiques et de conversion pour améliorer la qualité de nos services. Veuillez noter que certains contenus s'appuient sur des services proposés par des tiers. Cliquez ici pour en savoir plus et paramétrer les traceurs.



Match Dating Conventional Experience:

Regimes of attention (Boullier):
alertness / projection

- Individual evaluation
- Fast speed
- Intensity for excitement
- No focus or memory required
- Dating as a financial plan

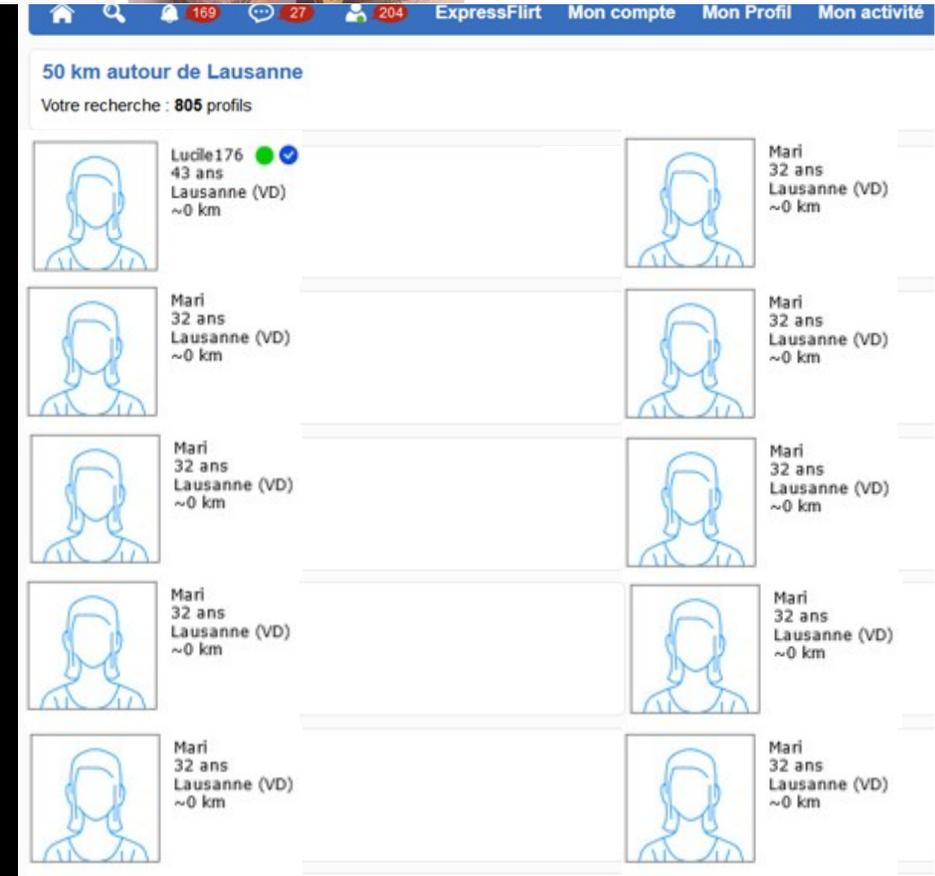
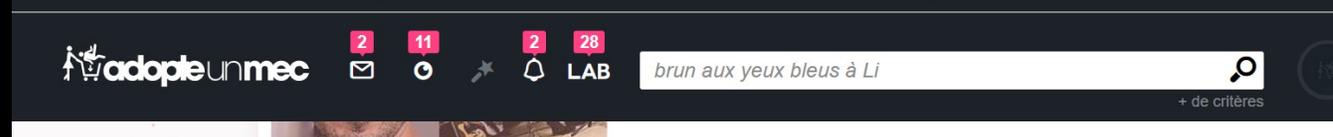


List-View Dating Conventional Experience:

Regimes of attention (Boullier):
loyalty / immersion

- Hierarchical ordering
- Availability to discuss
- More time in the app requested
- Immediate accessibility
- Comparison
- Filtering tasks

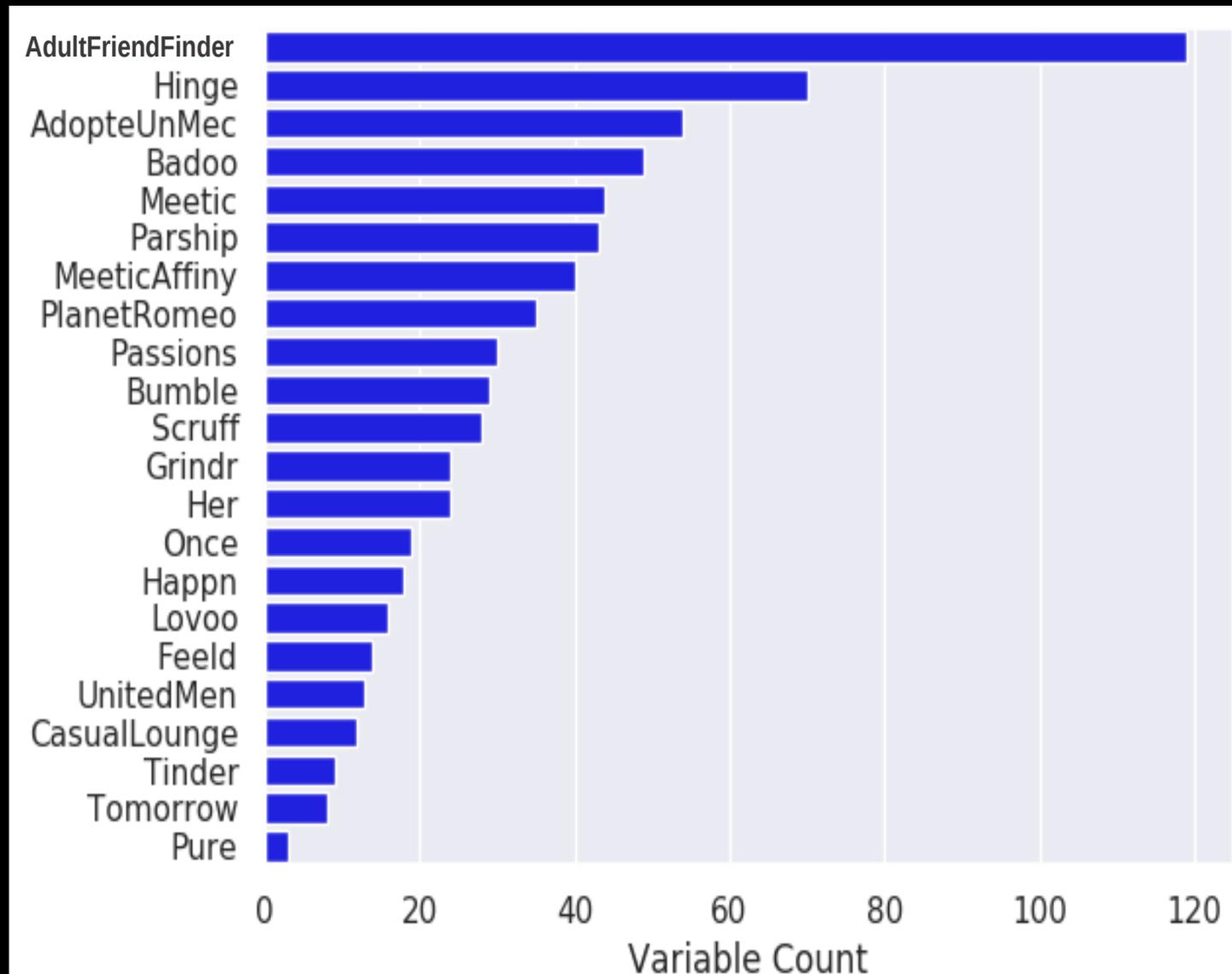
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4.1 Major Findings Chapter II (GUIs- Variables)



4.1 Major Findings Chapter II (GUIs) 28 / 48



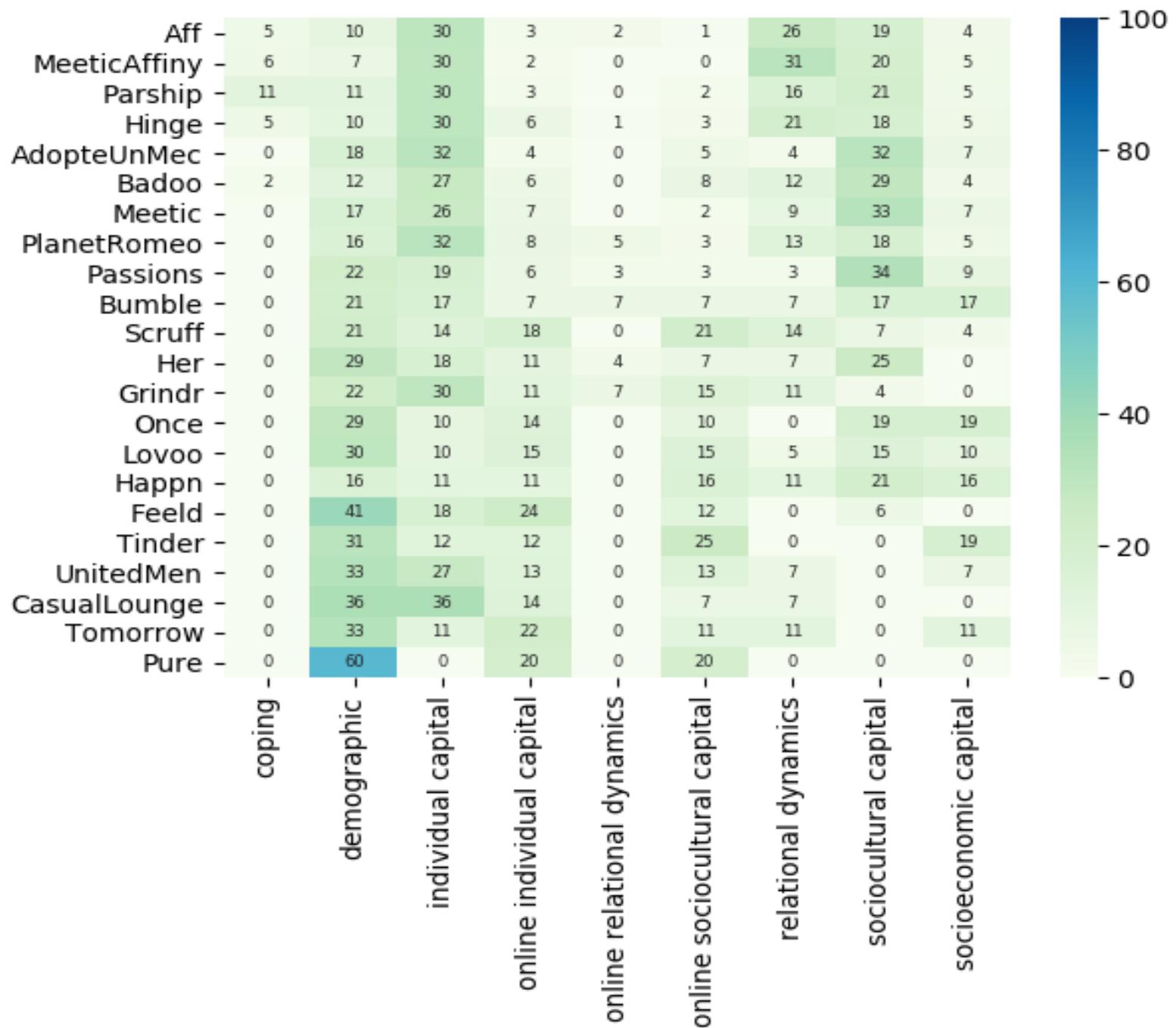
Distribution of 317 phenotype variables over 22 dating apps

Photo-visual
experience
(Illouz, 2020;
Potarca, 2020)

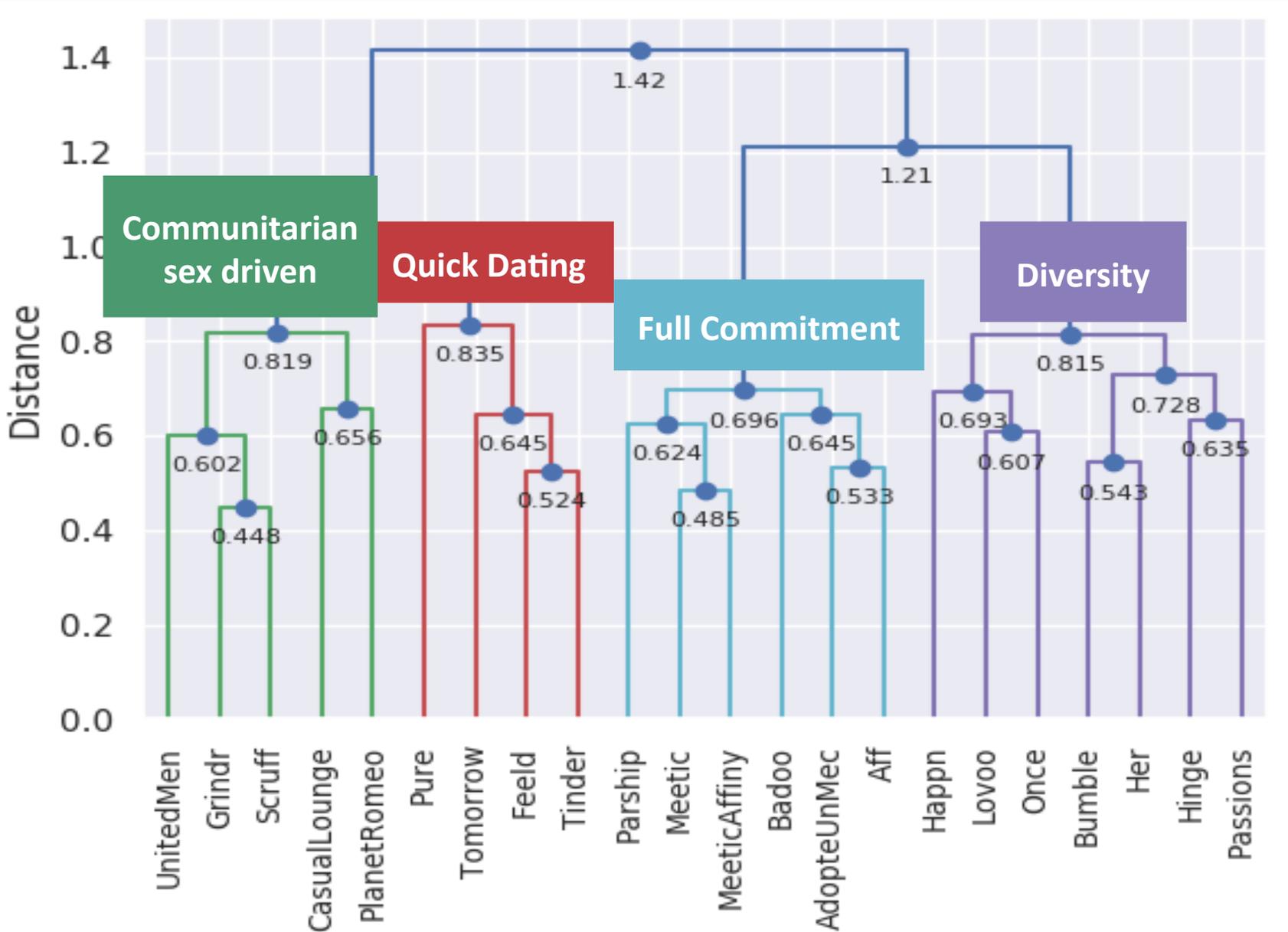
Not only

2 resulting
classifications

9 classes
of variables
for user
representation



Similarities of Dating App Variables: 4 Classes



Sexual consumption (Illouz, 2020)

Not only

Segmentation of preferences (Bergström, 2019)

More than Marketing

Ex. Full Commitment App Class (AdopteUnMec)

adopteunmec 34 11 LAB 375 PTS

33 ans Lausanne

7 800 PTS #nonfumeur #globetrotter #sommambule

★ POPULARITÉ

Mails	51 x 50 = 2550
Visites	820 x 5 = 4100
Panier	15 x 50 = 750
Bonus	400
TOTAL	7 800

👑 BADGES

📧 ENVOYER UN MESSAGE

💖 SUGGÉRER À UNE COPINE

DÉTAILS

YEUX non renseigné	RELATION SOUHAITÉE non renseigné	ALCOOL jamais
STYLE non renseigné	LIFE STYLE non renseigné	TABAC ne tolère pas la fumée
CHEVEUX non renseigné	HOBBIES non renseigné	ALIMENTATION non renseigné
MENSURATIONS 180 cm, 80 kg, normal	PROFESSION non renseigné	J'AIME MANGER non renseigné
SIGNES PARTICULIERS non renseigné	UNIVERSITÉ non renseigné	TRANSPORTS non renseigné
PILOSITÉ non renseigné		FONCTIONS non renseigné
ORIGINES non renseigné		

4.2 Major Findings Chapter III (Developers)

“Online Dating as a Software Program Development”



4.2 Major Findings Chapter III (Developers)

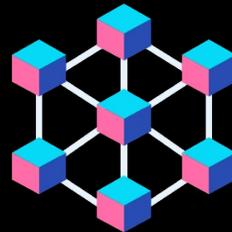
- Developers act as **translators**
→ **reality reduction**
- Developers' **personal experiences** for modelling the user
→ **I-methodology reproducing stereotypes**
- Systematic **imitation and counter-imitation** of existing dating apps
→ **socio-technical structures of amplification, reduced innovation**

International conference paper:

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4.3 Major Findings Chapter IV (Matching)

“Building an Expertise in Dating: Algorithmic Matching vs Human Matchmaking”



2.2 Major Findings: Tinder's Matching Study

- Human attractiveness according to a constructed **ranking**
Competitiveness
- Definition of new dating preferences based on **likes**
Polarization
- Algorithmic bubbles according to an **average idealized self** and a principle of **asymmetry** (patriarchal model)
Amplification

4.4 Major Findings Chapter V (Users)

“Human-Machine Dating”



4.4 Major Findings Chapter V (Users)

General Ethnomethods (Garfinkel, 1967; Leiter, 1980):

1. *Documentary Method*

2. *Typification*

Local Methods:

3. *Reactivity* (Boullier, 2019)

4. *Ambiguity Tolerance* (Furnham and Ribchester, 1995)

4.4 Major Findings Chapter V (Users)

Documentary Method: a divide between machine and human behavior

*“I tended to put a lot of girls on the right, saying yes to a lot of girls, and **apparently there's a range** where you have to be in terms of yes and no that allows you **to have a good score**. You always have to engage in **conversation**. But if there is a girl who has only one photo and has nothing on the description, you say ‘ah she is cute’, yes, **but I say to myself ‘what am I going to be able to say to her’**, so I don't say anything, I don't send any message, that is something you should not do, you should **answer quickly.**” (Male user)*

4.4 Major Findings Chapter V (Users)

Ambiguity Tolerance: Not defining the plan in advance, avoiding classifications

*“[The classical question is] **What are you looking for on Tinder?** So it's true that people have already asked me that, I have asked people that too. And then it is more **the way people answer. A little bit vague, you know.** [I say] I'm looking for what falls on me.” (Female user)*

4.4 Major Findings Chapter V (Users)

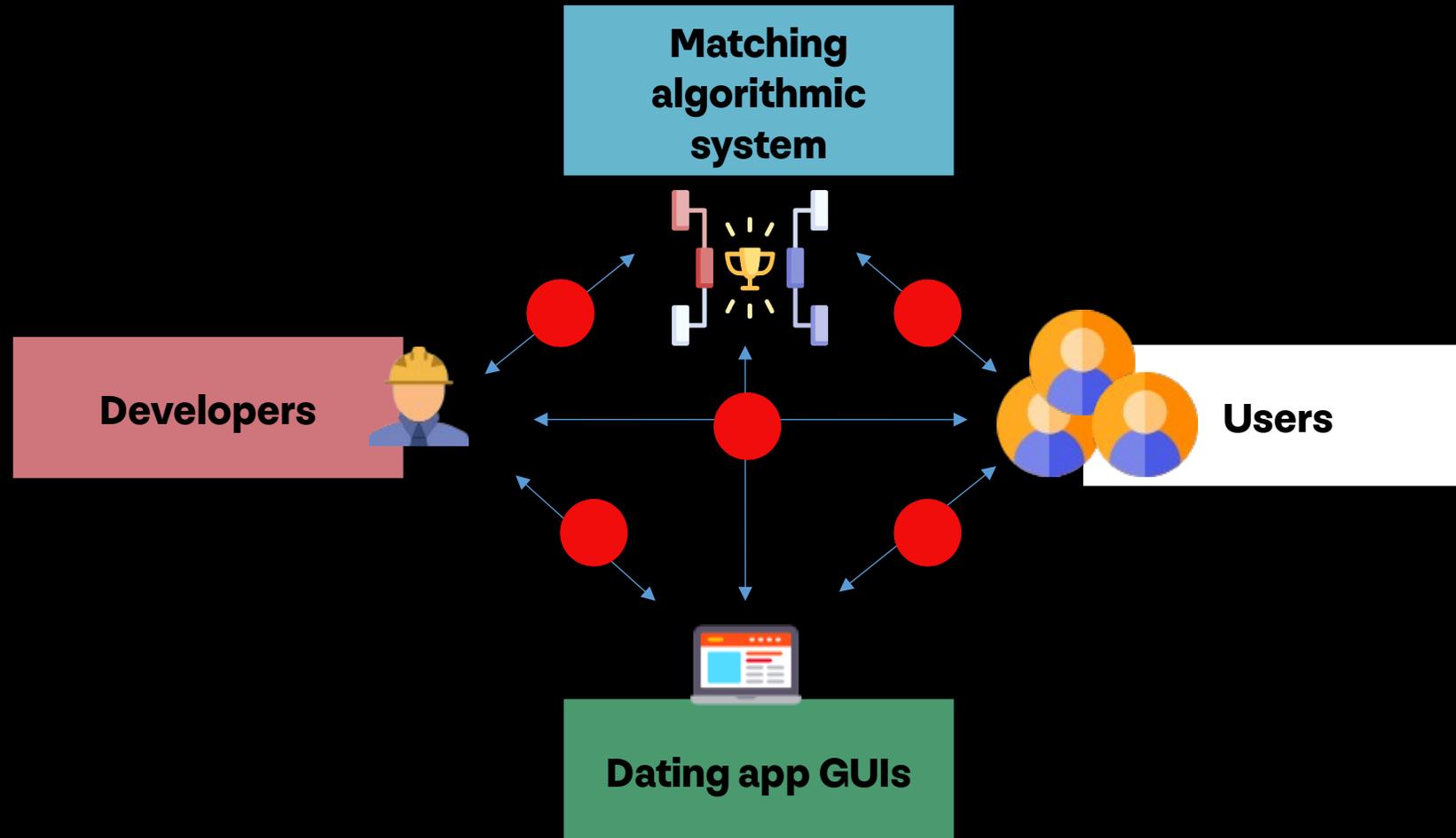
- Dating apps' explicit conventions act as a **learning framework** to attract / be attractive
- Users' implicit conventions for building a **common-sense knowledge** for **reviewing** their actions and experience
- Guidance / Divide / Tension between **technical expertise and human dating**

Conclusions



1. Dating apps are a medium that predefines the learning framework of actors' dating practices, **both online and offline**
→ what attributes to show, what to evaluate, how to seduce
2. The conventional design of GUIs captures actors' attention in the app which affects
→ **how to get out of the app** to engage in a relationship
3. Engineers / Users learn to readjust their actions according to the machine, human adaptation
→ **social life reduced to technical constraints**

Interface Studies (Pidoux and Kuntz)



Entrypoint: actors at the interface of algorithmic practices

“Extreme citizen science”



Sciences Po

“Data Collectives”



PersonalData.IO

https://wiki.personaldata.io/wiki/Project:Dating_Privacy

References Open Access:

bit.ly/3KRQMBv

The EPFL logo consists of the letters 'EPFL' in a bold, red, sans-serif font.The Infoscience logo features the word 'Infoscience' in a grey, sans-serif font, with 'EPFL scientific publications' in a smaller, grey, sans-serif font below it.

International conference paper:

PIDOUX J., KUNTZ P., GATICA-PEREZ D., 2021, « Declarative Variables in Online Dating: A Mixed-Method Analysis of a Mimetic-Distinctive Mechanism », 5, CSCW1, p. 100-132

Book chapter:

PIDOUX J., « Toi et moi, une distance calculée. Les pratiques de quantification algorithmiques sur Tinder. » in Yann Calbérac, Olivier Lazzarotti, Jacques Lévy & Michel Lussault (dir.), Carte d'identités. L'espace au singulier, Paris, Hermann, 2019

Thesis:

Pidoux J., Online Dating Quantification Practices: A Human-Machine Learning Process, 2021.