The Merits of Screening Automation for Bibliometric Analyses: The Case of Translational Psychotherapy

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White zebra **with black** stripes
or **black** zebra **with white** stripes?

Horse or **zebra**?

Basic Science		Psychological Intervention
Conditioning Theory	➡	Exposure Therapy
Relational Frame Theory	➡	Acceptance and Commitment Therapy

Translational Zorse

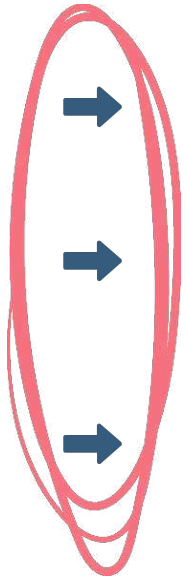
Basic Science	Psychological Intervention
Conditioning Theory	Exposure Therapy
Relational Frame Theory	Acceptance and Commitment Therapy

Translational Zorse

Basic Science

Conditioning Theory

Relational Frame Theory



Psychological Intervention

Exposure Therapy

Acceptance and Commitment Therapy

Translational Zorse

Problem: **Terminology** - *'translational'*

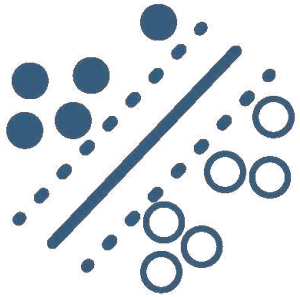
↳ Solution: **Wider search**

↳ Problem: **False positives**

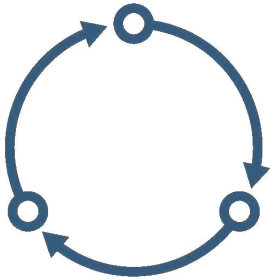
↳ Solution: **Screening automation**

200 000 +

683



Support Vector Machine



Active Learning

Inclusion probability of unreviewed references

rayyan 's Inclusion Probability

Inclusion Probability ≥ .9 [1]

Active Learning Round	*n* Predicted	*n* Included	**Precision**
1	211	107	**.51**
2 [2]	74	74	**1**

[1] further papers with inclusion probability **< .9 ∩ ≥ .7** were included
[2] automatic inclusion without further screening after the second round

Assessing the Added Value of ML

Training Dataset - papers found with known terminology only - '*translational*'

Final Dataset - papers found by leveraging Machine Learning

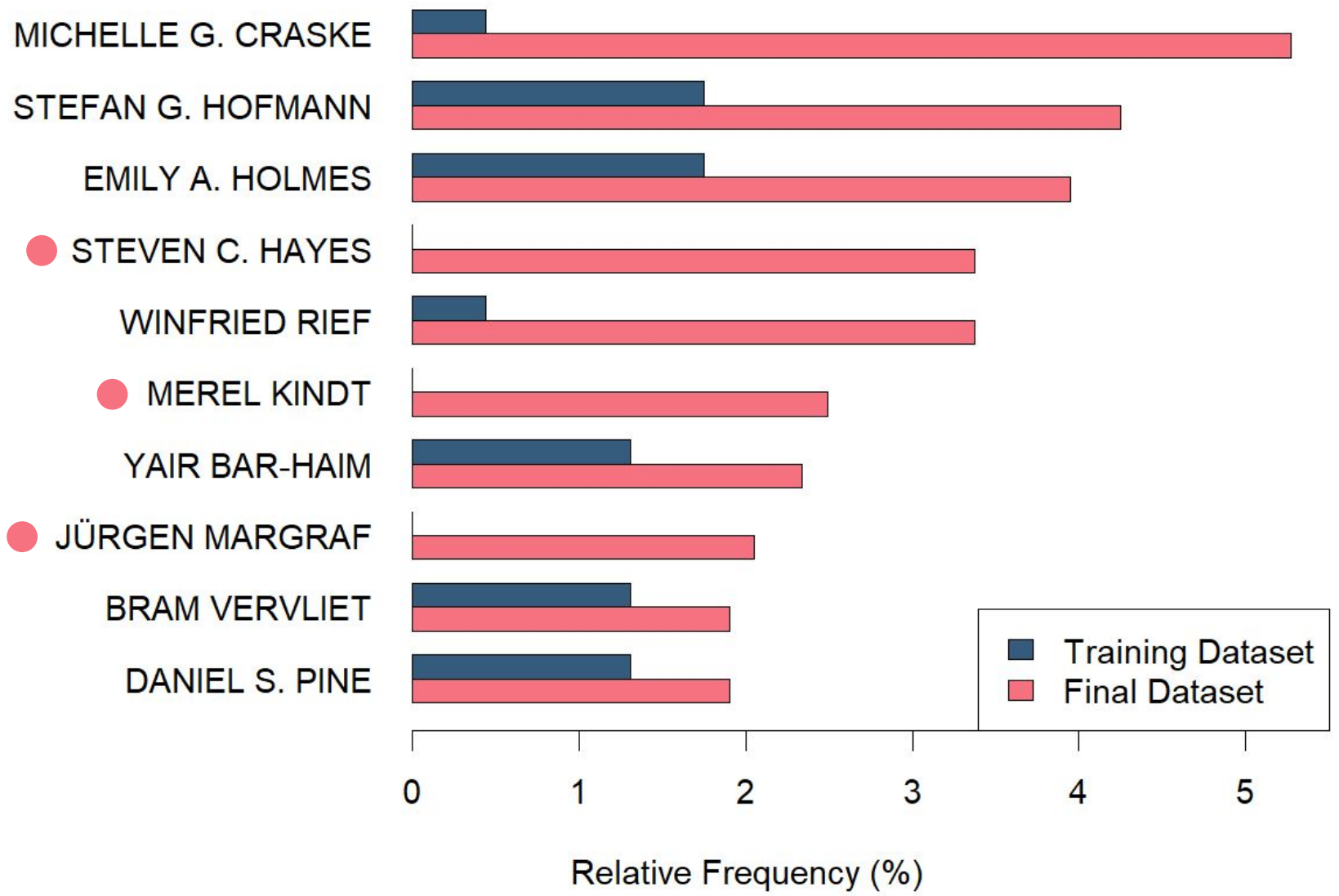
Publication volume, main actors, journals, regional differences

Impact indicators such as citations, collaboration networks and social metrics

Assessing the Added Value of ML

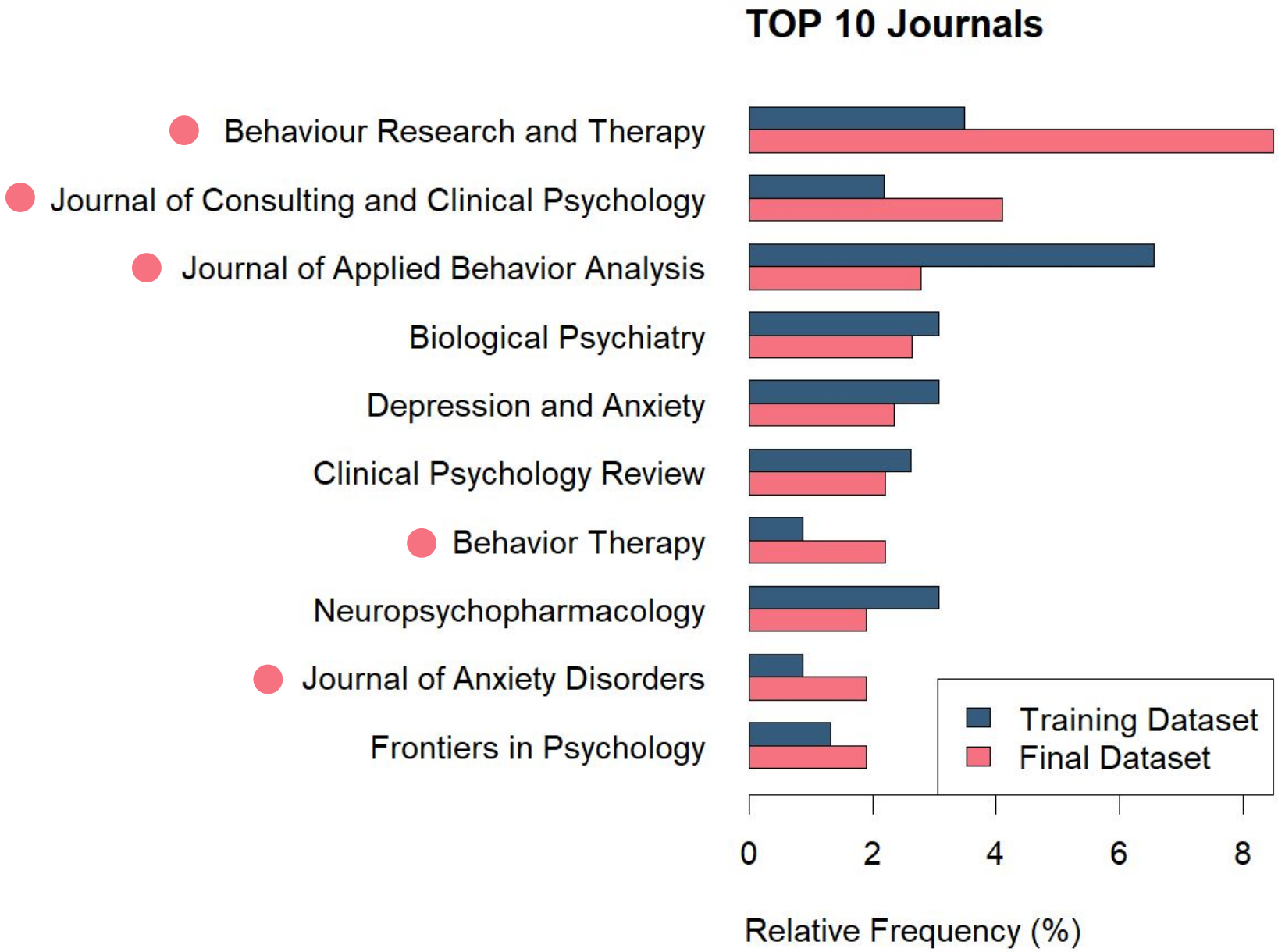
Criteria	Training Dataset	Final Dataset
N. of publications	229	683
Annual growth rate	9.33	13.07
M citations	21.56	67.38
Median citations	17	21
M Twitter mentions	4.86	20.58
Median Twitter mentions	1	2
Open Access	34.74%	37.21%

TOP 10 Authors



Top 10 Authors

Training Dataset	Final Dataset
Brian D. Greer	Michelle G. Craske
Hans-Ulrich Wittchen	Stefan G. Hoffmann
David M. Fresco	Emily A. Holmes
Douglas S. Mennin	Steven C. Hayes
Kerry J. Ressler	Winfried Rief
Christopher A. Podlesnik	Merel Kindt
Emily A. Holmes	Yair Bar-Haim
James J. Gross	Jürgen Margraf
Stefan G. Hoffmann	Bram Vervliet
Tanja Jovanovic	Daniel S. Pine


TOP 10 Journals
Behaviour Research and Therapy
Journal of Consulting and Clinical Psychology
Journal of Applied Behavior Analysis
Biological Psychiatry
Depression and Anxiety
Clinical Psychology Review
Behavior Therapy
Neuropsychopharmacology
Journal of Anxiety Disorders
Frontiers in Psychology
Training Dataset
Final Dataset
0
2
4
6
8
Relative Frequency (%)

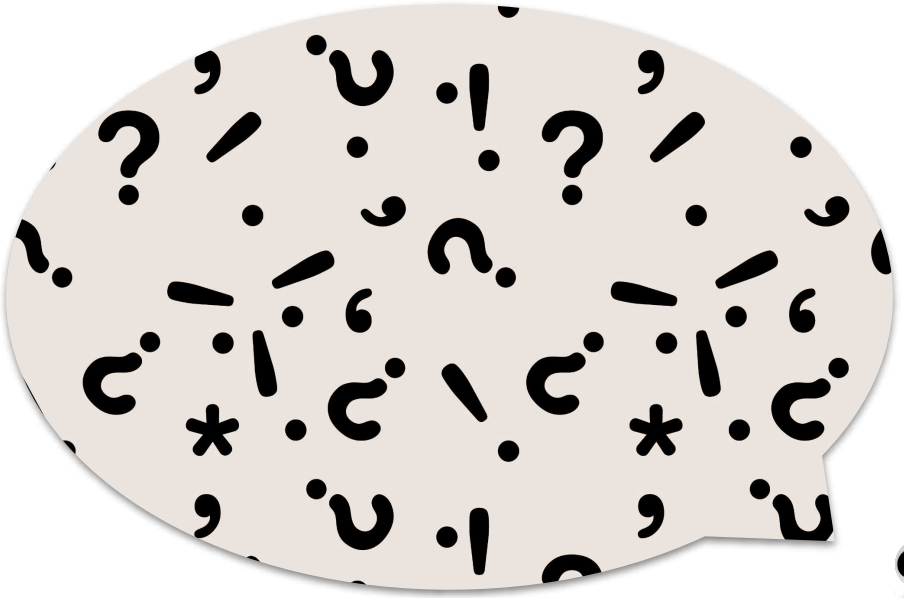
What does this mean?

ML can facilitate bibliometric analyses of emerging fields with **inconsistent** or partially unknown **terminology** and makes approachable fields that would otherwise be unexplored and **unexplorable**.

- implications for emerging or fragmented fields
- applications when inconsistent terminology
- not only a matter of **time-saving**, but also of **explorability**

Limitations and Future Research

- only Rayyan ➡ **performance** and **usability** of different classifiers
- pool of relevant references generated manually ➡ more automation
- translational psychotherapy ➡ generalizability across different emerging fields
- define profiles of research fields that could benefit from ML assistance
  - e.g. when is terminology too inconsistent for explicit searches?



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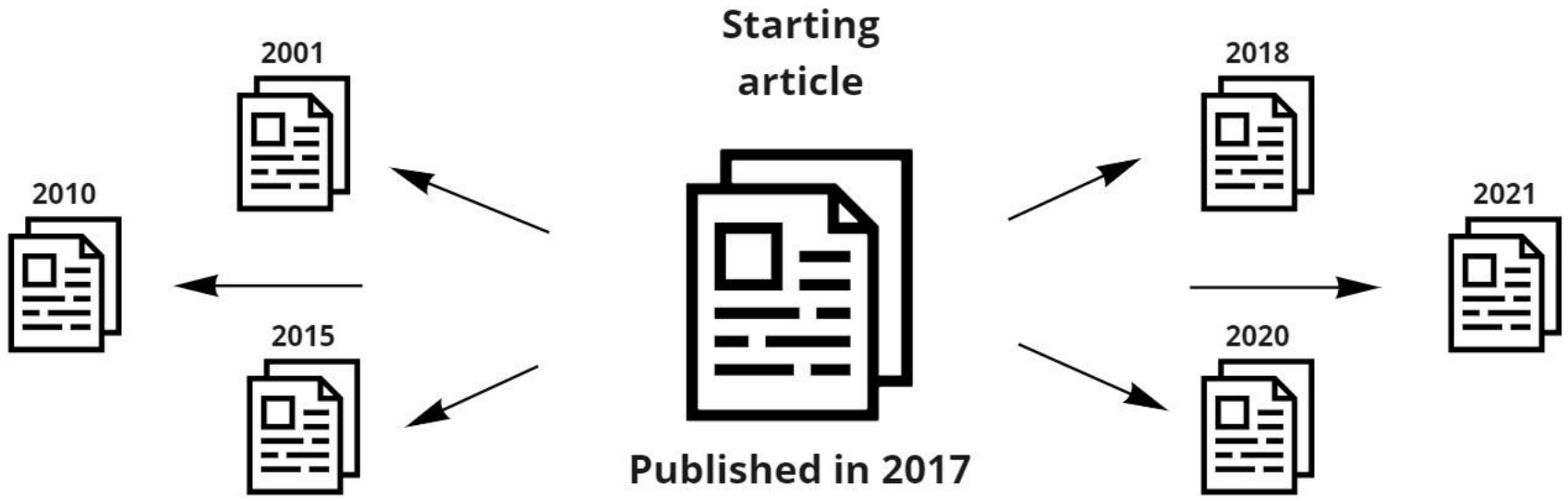
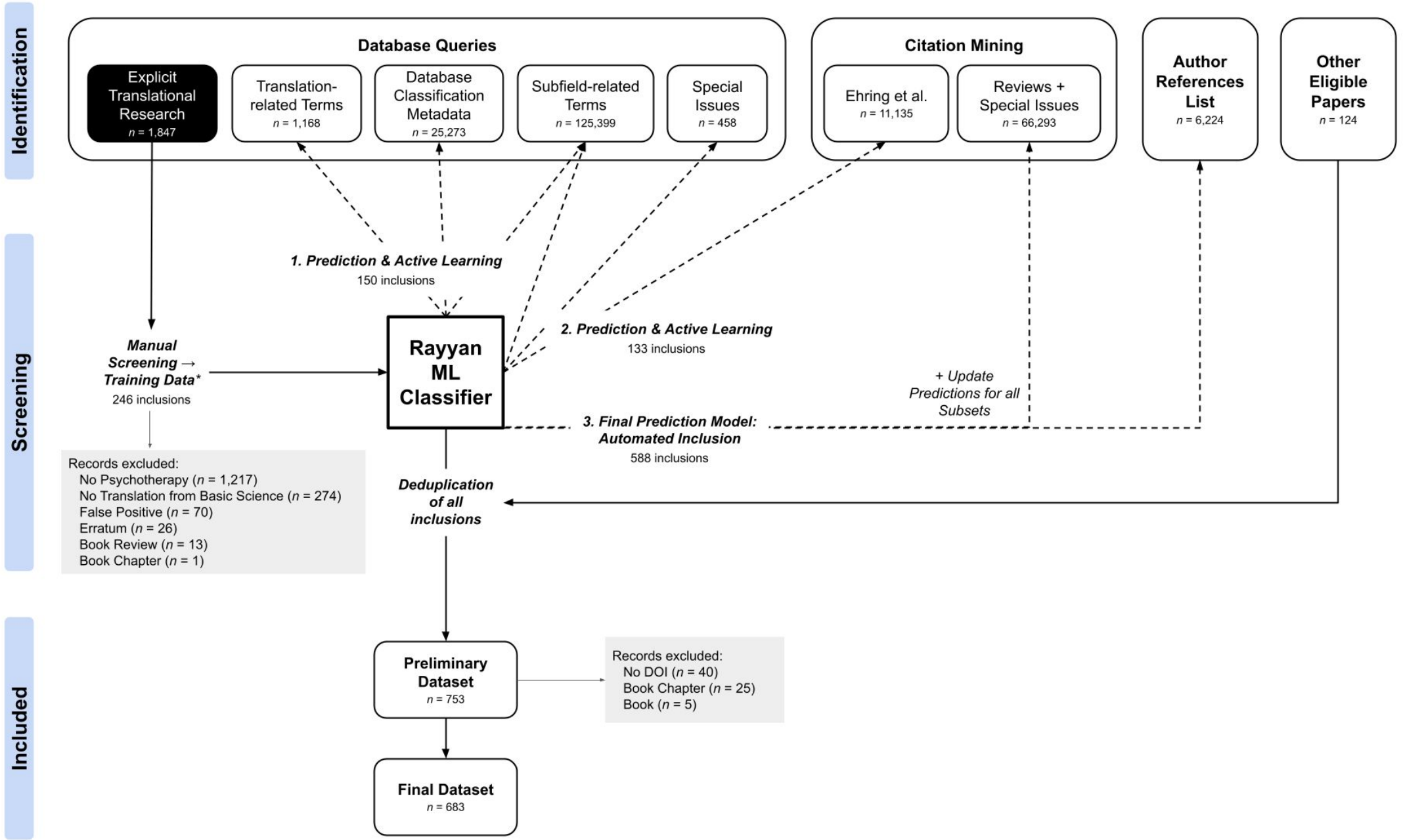
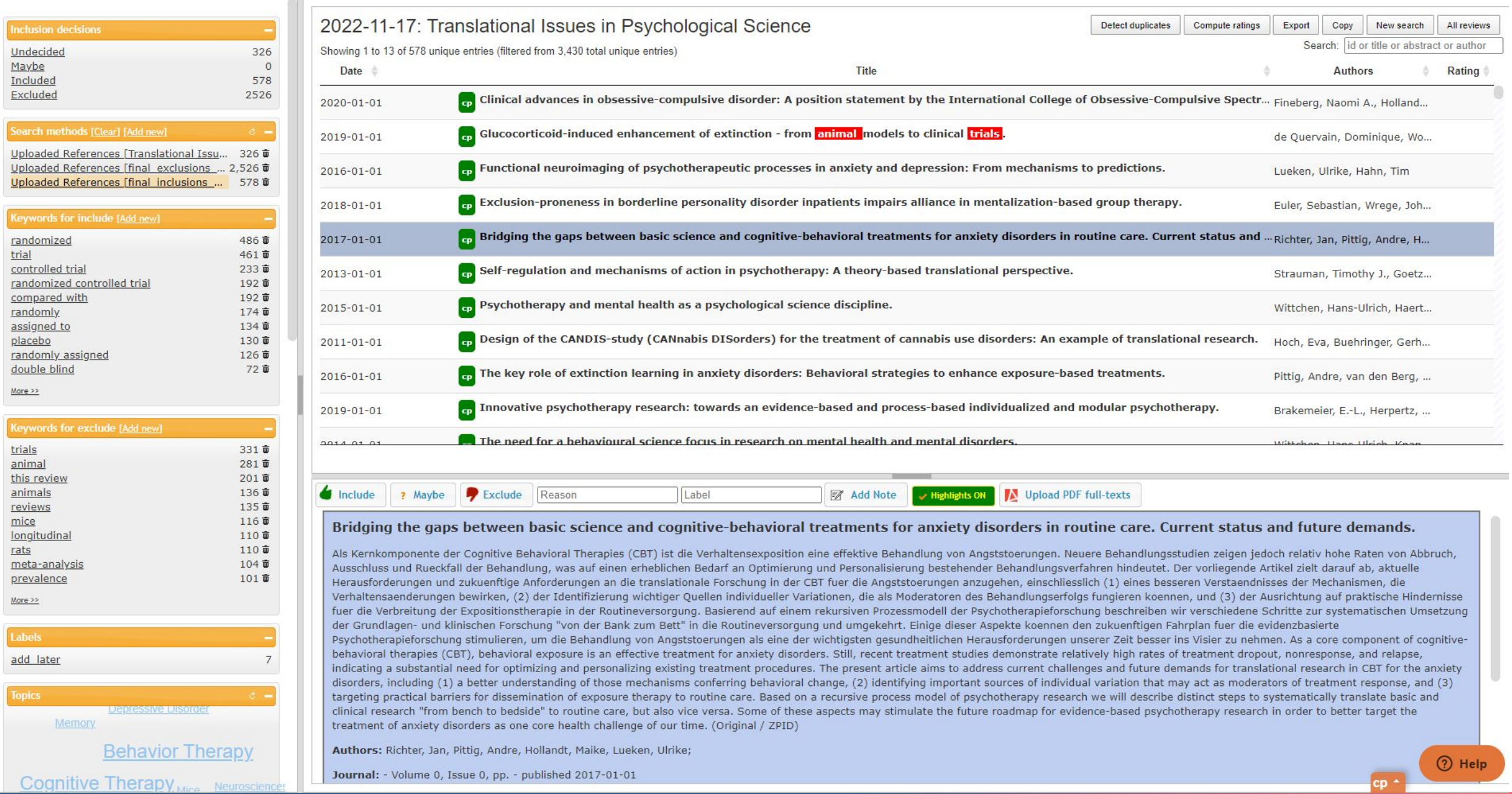
Backward citation searching
older publications

Forward citation searching
newer publications




Identification
Screening
Included
Database Queries
Explicit Translational Research
n = 1,847
Translation-related Terms
n = 1,168
Database Classification Metadata
n = 25,273
Subfield-related Terms
n = 125,399
Special Issues
n = 458
Citation Mining
Ehring et al.
n = 11,135
Reviews + Special Issues
n = 66,293
Author References List
n = 6,224
Other Eligible Papers
n = 124
1. Prediction & Active Learning
150 inclusions
2. Prediction & Active Learning
133 inclusions
Manual Screening → Training Data*
246 inclusions
Rayyan ML Classifier
+ Update Predictions for all Subsets
3. Final Prediction Model: Automated Inclusion
588 inclusions
Records excluded:
No Psychotherapy (n = 1,217)
No Translation from Basic Science (n = 274)
False Positive (n = 70)
Erratum (n = 26)
Book Review (n = 13)
Book Chapter (n = 1)
Deduplication of all inclusions
Preliminary Dataset
n = 753
Records excluded:
No DOI (n = 40)
Book Chapter (n = 25)
Book (n = 5)
Final Dataset
n = 683

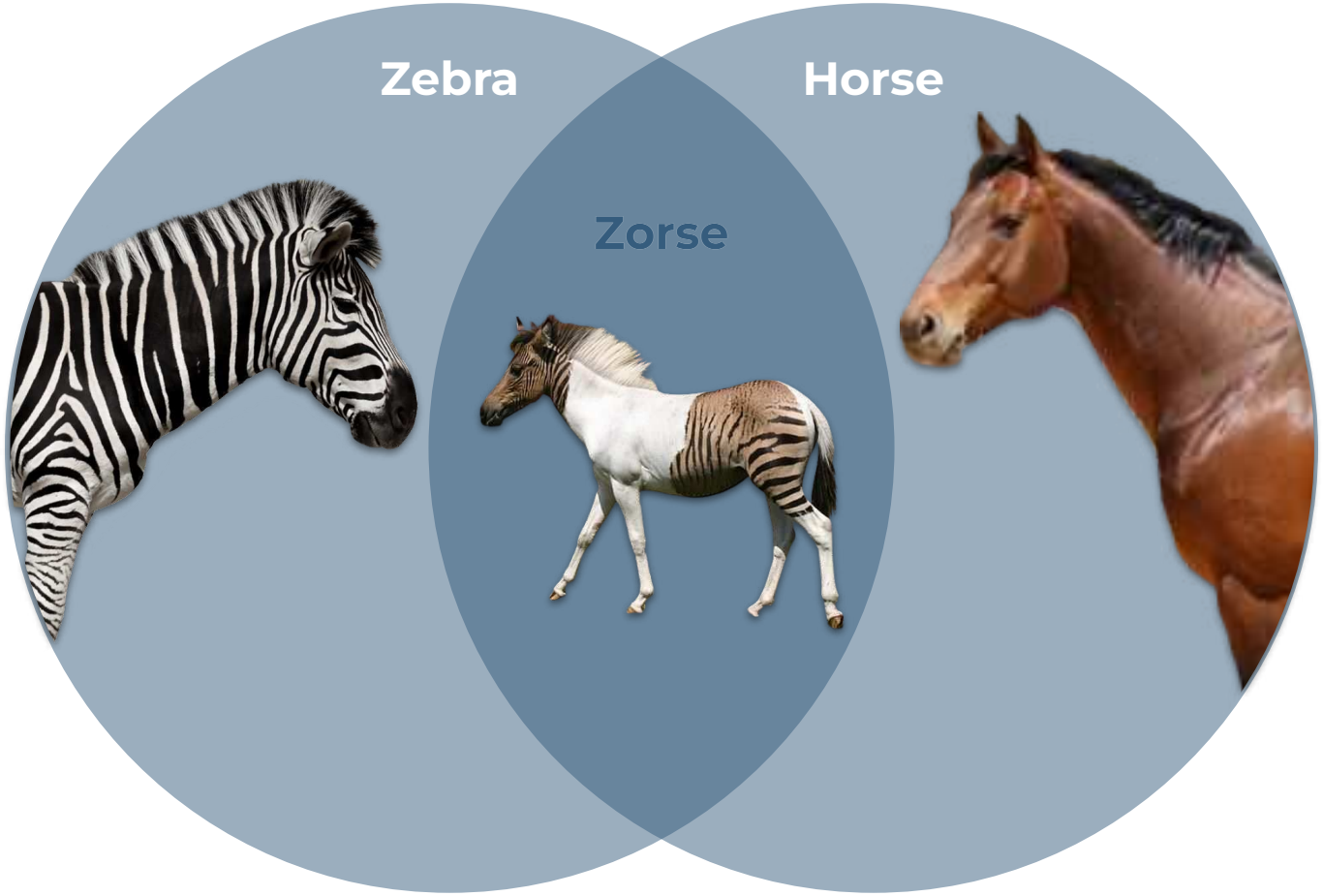
800 + Terms


Inclusion decisions
Undecided 326
Maybe 0
Included 578
Excluded 2526
Search methods [Clear] [Add new]
Uploaded References [Translational Issu... 326
Uploaded References [final_exclusions_... 2,526
Uploaded References [final_inclusions_... 578
Keywords for include [Add new]
randomized 486
trial 461
controlled trial 233
randomized controlled trial 192
compared with 192
randomly 174
assigned to 134
placebo 130
randomly assigned 126
double blind 72
More >>
Keywords for exclude [Add new]
trials 331
animal 281
this review 201
animals 136
reviews 135
mice 116
longitudinal 110
rats 110
meta-analysis 104
prevalence 101
More >>
Labels
add_later 7
Topics
Depressive Disorder
Memory
Behavior Therapy
Cognitive Therapy
Mice
Neurosciences
2022-11-17: Translational Issues in Psychological Science
Detect duplicates
Compute ratings
Export
Copy
New search
All reviews
Showing 1 to 13 of 578 unique entries (filtered from 3,430 total unique entries)
Search: id or title or abstract or author
Date
Title
Authors
Rating
2020-01-01 Clinical advances in obsessive-compulsive disorder: A position statement by the International College of Obsessive-Compulsive Spectr... Fineberg, Naomi A., Holland...
2019-01-01 Glucocorticoid-induced enhancement of extinction - from animal models to clinical trials. de Quervain, Dominique, Wo...
2016-01-01 Functional neuroimaging of psychotherapeutic processes in anxiety and depression: From mechanisms to predictions. Lueken, Ulrike, Hahn, Tim
2018-01-01 Exclusion-proneness in borderline personality disorder inpatients impairs alliance in mentalization-based group therapy. Euler, Sebastian, Wrege, Joh...
2017-01-01 Bridging the gaps between basic science and cognitive-behavioral treatments for anxiety disorders in routine care. Current status and ... Richter, Jan, Pittig, Andre, H...
2013-01-01 Self-regulation and mechanisms of action in psychotherapy: A theory-based translational perspective. Strauman, Timothy J., Goetz...
2015-01-01 Psychotherapy and mental health as a psychological science discipline. Wittchen, Hans-Ulrich, Haert...
2011-01-01 Design of the CANDIS-study (CANnabis DISorders) for the treatment of cannabis use disorders: An example of translational research. Hoch, Eva, Buehringer, Gerh...
2016-01-01 The key role of extinction learning in anxiety disorders: Behavioral strategies to enhance exposure-based treatments. Pittig, Andre, van den Berg, ...
2019-01-01 Innovative psychotherapy research: towards an evidence-based and process-based individualized and modular psychotherapy. Brakemeier, E.-L., Herpertz, ...
The need for a behavioural science focus in research on mental health and mental disorders.
Include
Maybe
Exclude
Reason
Label
Add Note
Highlights ON
Upload PDF full-texts
Bridging the gaps between basic science and cognitive-behavioral treatments for anxiety disorders in routine care. Current status and future demands.
Als Kernkomponente der Cognitive Behavioral Therapies (CBT) ist die Verhaltensexposition eine effektive Behandlung von Angststoerungen. Neuere Behandlungsstudien zeigen jedoch relativ hohe Raten von Abbruch, Ausschluss und Rueckfall der Behandlung, was auf einen erheblichen Bedarf an Optimierung und Personalisierung bestehender Behandlungsverfahren hindeutet. Der vorliegende Artikel zielt darauf ab, aktuelle Herausforderungen und zukuenftige Anforderungen an die translationale Forschung in der CBT fuer die Angststoerungen anzugehen, einschliesslich (1) eines besseren Verstaendnisses der Mechanismen, die Verhaltensaenderungen bewirken, (2) der Identifizierung wichtiger Quellen individueller Variationen, die als Moderatoren des Behandlungserfolgs fungieren koennen, und (3) der Ausrichtung auf praktische Hindernisse fuer die Verbreitung der Expositionstherapie in der Routineversorgung. Basierend auf einem rekursiven Prozessmodell der Psychotherapieforschung beschreiben wir verschiedene Schritte zur systematischen Umsetzung der Grundlagen- und klinischen Forschung "von der Bank zum Bett" in die Routineversorgung und umgekehrt. Einige dieser Aspekte koennen den zukuenftigen Fahrplan fuer die evidenzbasierte Psychotherapieforschung stimulieren, um die Behandlung von Angststoerungen als eine der wichtigsten gesundheitlichen Herausforderungen unserer Zeit besser ins Visier zu nehmen. As a core component of cognitive-behavioral therapies (CBT), behavioral exposure is an effective treatment for anxiety disorders. Still, recent treatment studies demonstrate relatively high rates of treatment dropout, nonresponse, and relapse, indicating a substantial need for optimizing and personalizing existing treatment procedures. The present article aims to address current challenges and future demands for translational research in CBT for the anxiety disorders, including (1) a better understanding of those mechanisms conferring behavioral change, (2) identifying important sources of individual variation that may act as moderators of treatment response, and (3) targeting practical barriers for dissemination of exposure therapy to routine care. Based on a recursive process model of psychotherapy research we will describe distinct steps to systematically translate basic and clinical research "from bench to bedside" to routine care, but also vice versa. Some of these aspects may stimulate the future roadmap for evidence-based psychotherapy research in order to better target the treatment of anxiety disorders as one core health challenge of our time. (Original / ZPID)
Authors: Richter, Jan, Pittig, Andre, Hollandt, Maike, Lueken, Ulrike;
Journal: - Volume 0, Issue 0, pp. - published 2017-01-01
Help
cp

rayyan 's Inclusion Probability

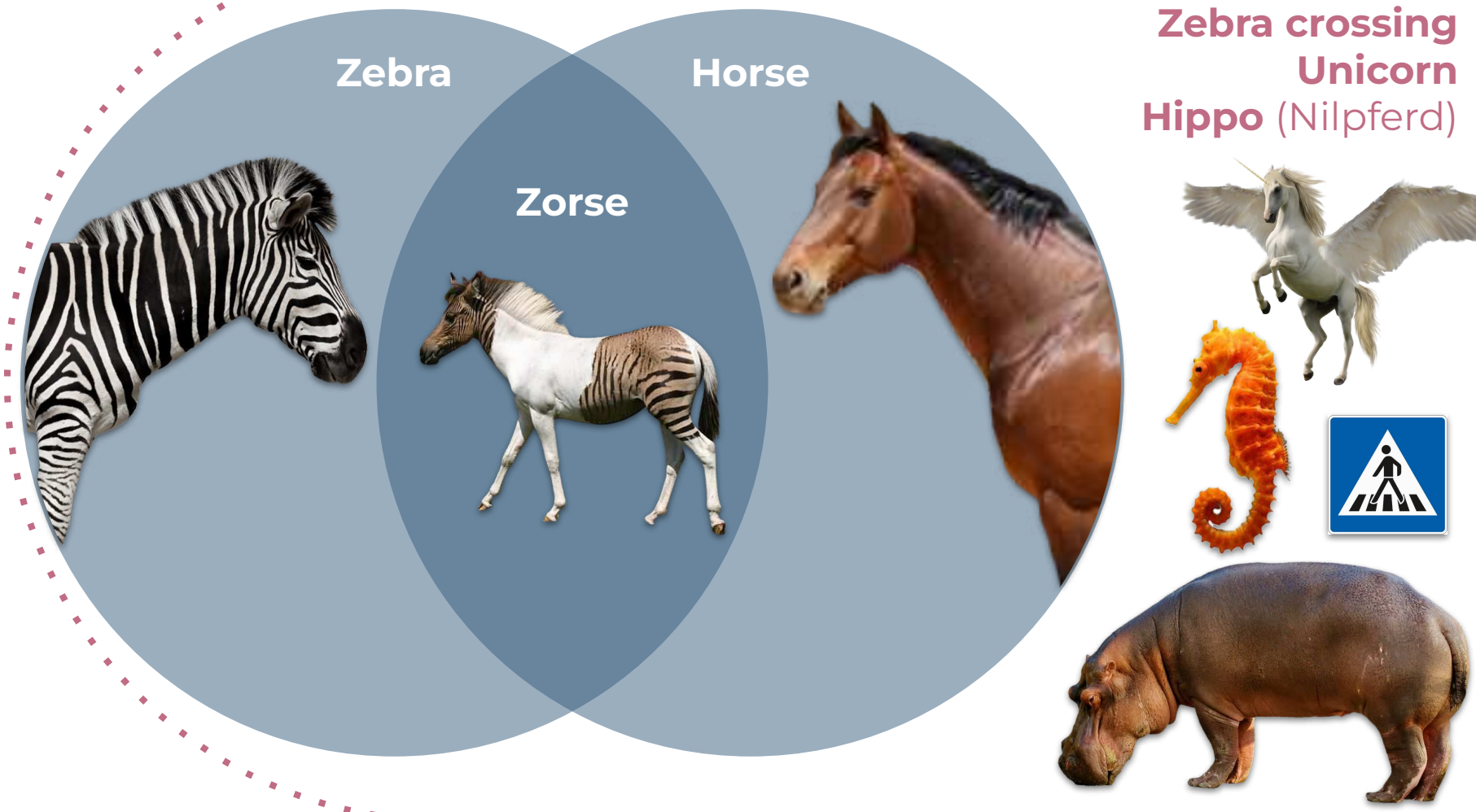
	≥ .9			< .9 ∩ ≥ .7		
Round of Active Learning	*n* Predicted	*n* Included	**Precision**	*n* Predicted	*n* Included	**Precision**
1	211	107	**.51**	76	43	**.57**
2	74	74	**1**	62	59	**.95**

Zorse



1. Explicit Level - (n = 1,847)
"Translational AND Psychotherapy"

Seahorse
Zebra crossing
Unicorn
Hippo (Nilpferd)

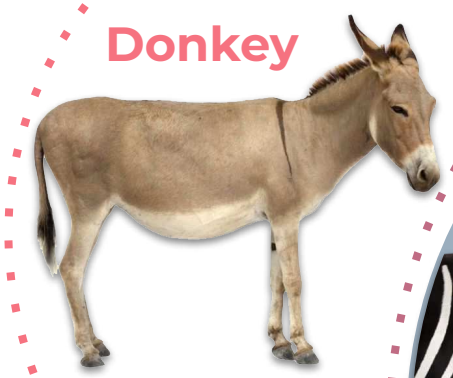


1. Explicit Level - (n = 1,847)
"Translational AND Psychotherapy"

2. Synonyms Level (n = 1,168)

Equus
equidae

Donkey

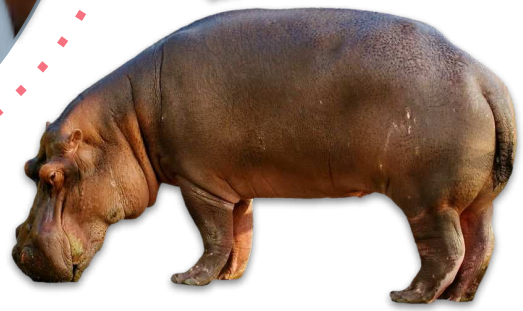


Zebra

Zorse

Horse

Seahorse
Zebra crossing
Unicorn
Hippo (Nilpferd)



1. Explicit Level - (n = 1,847)
"Translational AND Psychotherapy"

2. Synonyms Level (n = 1,168)

3. Classification Level (n = 25,273)
Classification Codes (CC)

4. Concept Level (125,399)
Controlled Terms (SH and HW) and Thesaurus-Liste (CT)