

CRACKING THE TRAUMA NARRATIVES A SEMI-AUTOMATED APPROACH



Building a Semi-Automatic Coding System of Autobiographical Reasoning in Trauma narratives



Programme de recherche
transdisciplinaire

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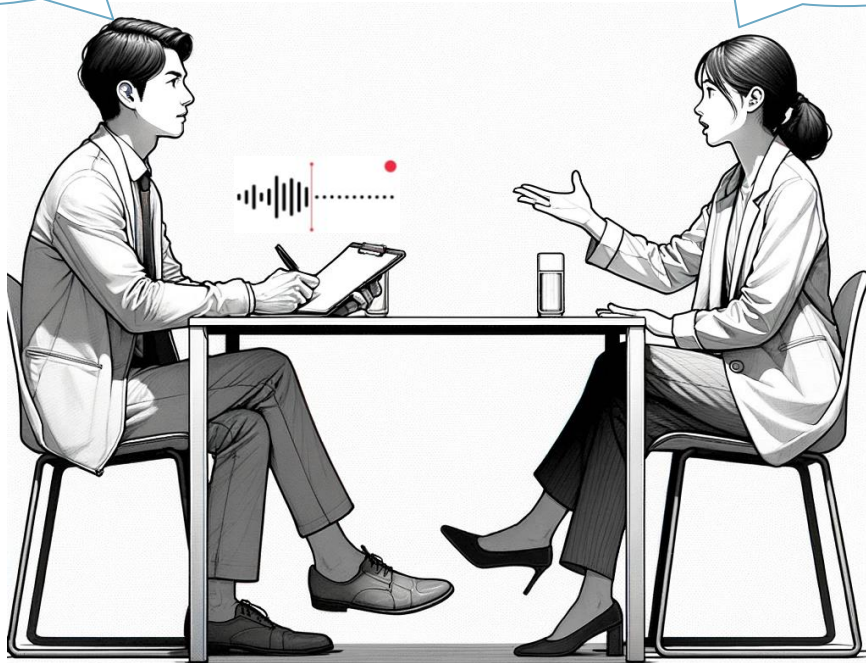


INVESTIGATION OF THE NARRATIVE SELF

Semi-structured interview

"Tell me your experience."

"When I was younger, ..."



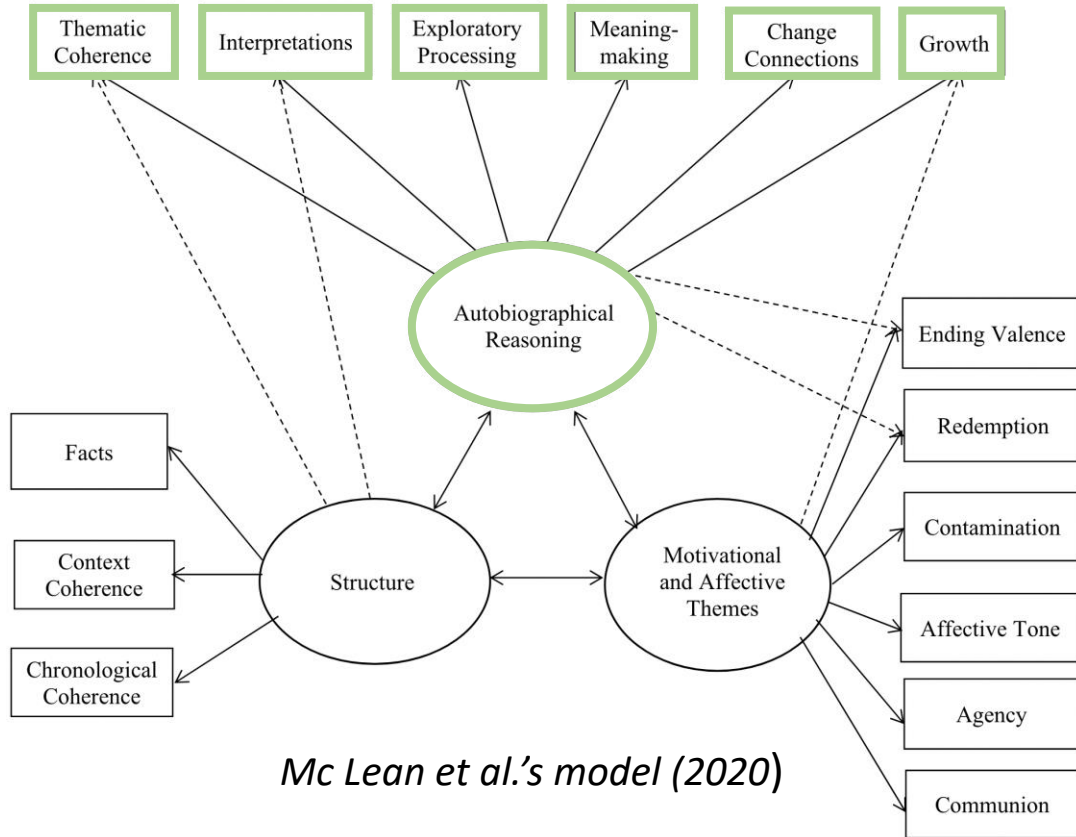
Narrative Coding System

Flexible: type of narrative, interviewer's instructions, mode or context of narration, etc.

Self-assessments


INVESTIGATION OF THE NARRATIVE SELF

Narrative coding system



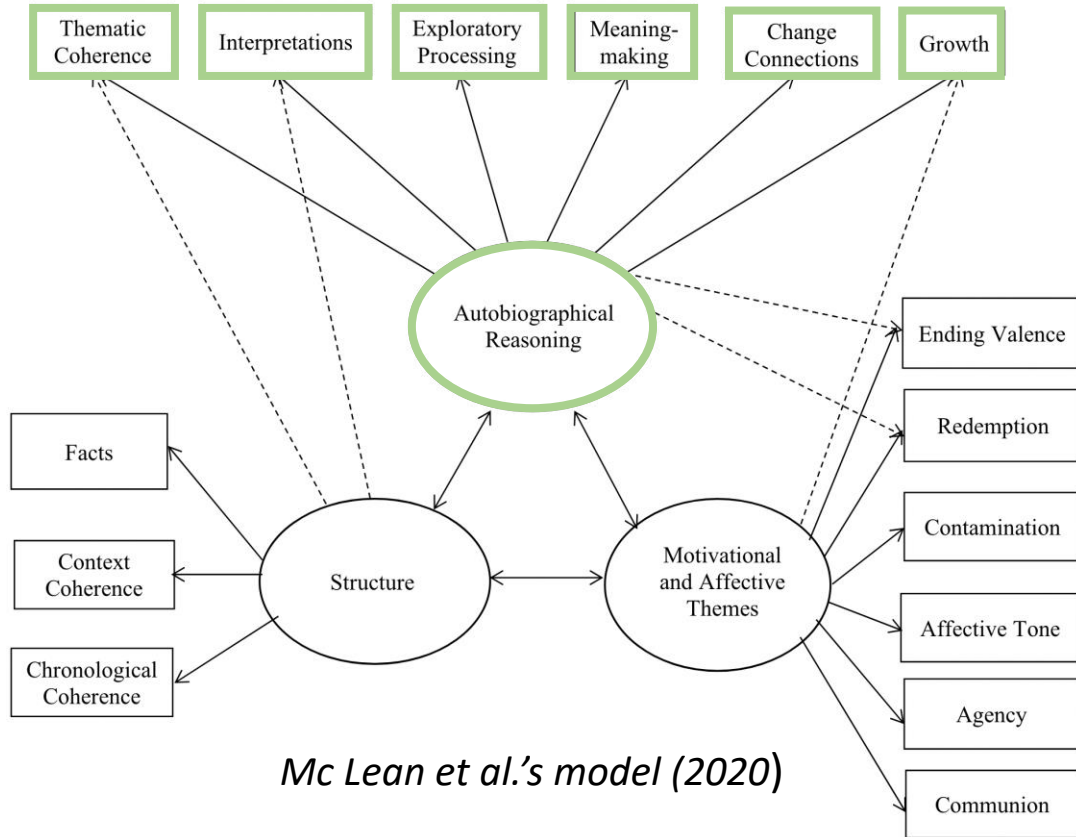
Reasoning activity :

- ◇ links our self (beliefs, values) to our experiences
- ◇ creates relations between different parts of one's past, present, and future life
- ◇ forms coherent self narratives

 Main narrative dimensions of autobiographical reasoning

INVESTIGATION OF THE NARRATIVE SELF

Narrative coding system



Limitations of these Likert scales

- ◇ Subjectivity
- ◇ Long training and assessment times
- ◇ Difficult reproducibility

 Main narrative dimensions of autobiographical reasoning

INVESTIGATION OF THE TRAUMA NARRATIVE



Traumatic events
e.g. terrorist attacks 13.11.2015



Identity injury
Discrepancy between beliefs and this unpredictable and uncontrollable event



Potential PTSD as a memory disorder
Traumatic memory : dissociated from the autobiographical continuum

A singular narrative

- ◇ Predominance of sensory/perceptive aspects > cognitive
 - ◇ Longer
 - ◇ Fragmented (?)
 - ◇ Positive emotions = better
 - ◇ Positive self-assessments = better
 - ◇ Growth = ↑ well-being, ↓ PTSD
- ◇ High ruminations and low meaning-making = ↑ psychopathology (?)

INVESTIGATION OF THE TRAUMA NARRATIVE



Traumatic events

e.g. terrorist attacks 13.11.2015



Identity injury

Discrepancy between beliefs and this unpredictable and uncontrollable event



Potential PTSD as a memory disorder

Traumatic memory : dissociated from the autobiographical continuum



Limitations of these studies

- ◇ Population : heterogeneity of the type of traumatic event experienced
 - ◇ Measurement heterogeneity
- ◇ On autobiographical reasoning : focus on highly stressful narratives rather than trauma narratives
 - ◇ Mainly cross-sectional studies

OBJECTIVE



Now, we offer a **fast & reliable semi-automatic method** for analyzing **autobiographical reasoning***, built on 178 narratives of Paris November, 2015 terrorist attacks.



**To find out more about our population and initial results concerning autobiographical reasoning, see our first poster.*

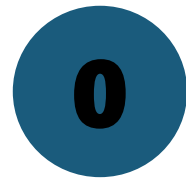


NARRATIVE DIMENSIONS OF AUTOBIOGRAPHICAL REASONING

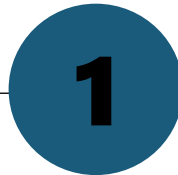


Interpretation

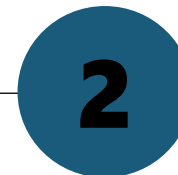
Refers to mental processes and subjective statements (evaluations, judgments, emotions, thoughts, intentions, goals)



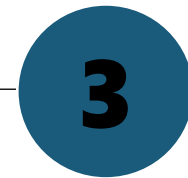
None



Low



Moderate



High and elaborate

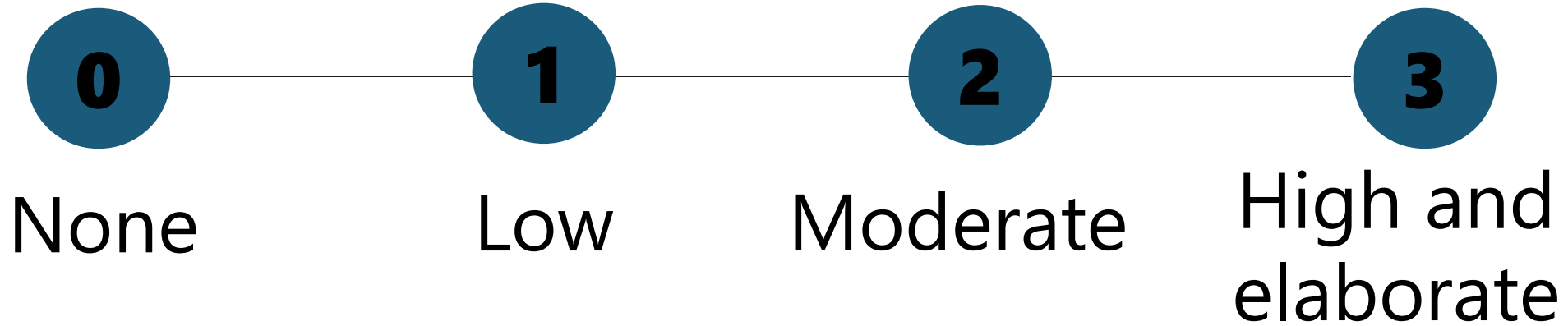
"They started gathering people inside, so wounded, uh... So there my boss he orders me to go around the area."

NARRATIVE DIMENSIONS OF AUTOBIOGRAPHICAL REASONING



Interpretation

Refers to mental processes and subjective statements (evaluations, judgments, emotions, thoughts, intentions, goals)



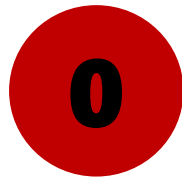
"They're dangerous but, I'm not totally pessimistic in saying that they're not going to win, it's... here's life it's still on the side of, freedom, not of, calls for death... people in absolutely, completely medieval constraints so I find that I'm relatively optimistic about what's going on."

NARRATIVE DIMENSIONS OF AUTOBIOGRAPHICAL REASONING

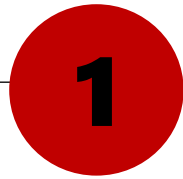


Exploratory process

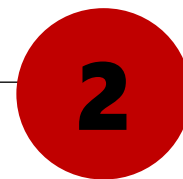
Refers to the analysis, exploration and explicit reflection of the meaning of the event to understand its internal impact and its potential to change the self.



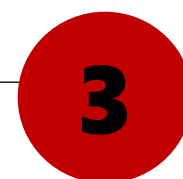
None



Low



Moderate



High and
central



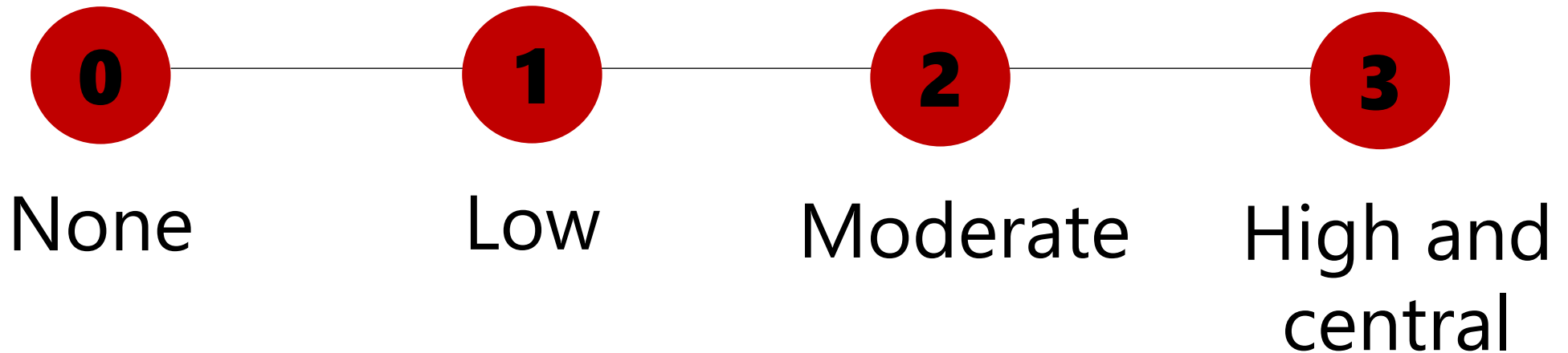
*"I used to turn off the TV as soon as...
Because I think there's a lot of bullshit.
And then, it's good, I lived it, I didn't
need...to tell me the same thing over and
over again."*

NARRATIVE DIMENSIONS OF AUTOBIOGRAPHICAL REASONING



Exploratory process

Refers to the analysis, exploration and explicit reflection of the meaning of the event to understand its internal impact and its potential to change the self.



"I'm trying to understand because it's so uh... because I think intellectualizing means taking back a little power over something that's on the order of barbarism, the most atrocious kind. I wanted to analyse."

NARRATIVE DIMENSIONS OF AUTOBIOGRAPHICAL REASONING

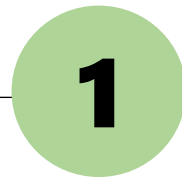


Meaning making

Refers to what the narrator claims to learn or understand about himself or the world from the event



None



Lesson



Vague Meaning



Insight

"So, I realize that if I've experienced a terrorist attack, statistically, there's very little chance of a second one."

NARRATIVE DIMENSIONS OF AUTOBIOGRAPHICAL REASONING

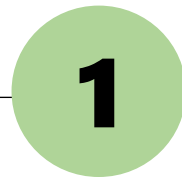


Meaning making

Refers to what the narrator claims to learn or understand about himself or the world from the event



None



Lesson



Vague Meaning



Insight



"Following this event, many things in my life have changed. I'm not the same person anymore."

NARRATIVE DIMENSIONS OF AUTOBIOGRAPHICAL REASONING



Meaning making

Refers to what the narrator claims to learn or understand about himself or the world from the event



None



Lesson



Vague Meaning



Insight



"Today, I've become more resilient in the face of adversity."

CREATION OF DICTIONARIES

French dictionary basis

Interpretation

Exploratory process

Meaning making



Cognitive processes
(Piolat et al., 2011)



Cognitive processes
(Piolat et al., 2011)



56 emotion categories
(Piolat & Bannour, 2008)



36 exposed to the
Strasbourg attacks
36 narratives of the attacks
72 self-defining memories

24 controls
24 schizophrenics
~ 384 self-defining memories

CREATION OF DICTIONARIES

French dictionary basis

Interpretation

Exploratory process

Meaning making



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Validation set (25 narratives of Paris
November, 2015 terrorist attacks)

15 exposed subjects
10 unexposed subjects

CREATION OF DICTIONARIES

Examples

Interpretation

*"atrocious/atrocious/atrociously",
"experiencing/exhausting", "state
of shock", "in my eyes", "in my
opinion", "I don't care",*

...

Exploratory process

*"analysis/analyze", "cogitate",
"reflection/reflect", "try to
understand", "seek information", "share
with others", "question",*

...

Meaning making

*"I realize that I ..", "Since that
moment, I've been... ", "I'm no longer
the same", "I have a different
vision", "it's a part of me", ...*

CONTEXTUALIZATION

Concordance analysis : TXM 0.8.3



Observe dictionary referents (words, expressions) in context, identify noises and silences, and specify referents, based on 934 traumatic narratives of Paris November, 2015 terrorist attacks.

| name, age | Contexte gauche | Pivot | Contexte droit |
|-------------|-----------------------------|------------|---|
| PAR0028, 68 | Et, et j' | ai compris | ... Enfin, il y a des gens qui ont compris que |
| PAR0024, 26 | J' | ai compris | que je peux être soutenu par mes amis, si j'avais |
| PAR0024, 26 | C'était inhumaine. ". Je j' | ai compris | ce qu'elle avait contre moi. |



CQL (Corpus Query Language) request in French

Query language used to interrogate textual databases, enabling the specification of complex search criteria based on the linguistic structure and content of texts.

Interpretation

[frlemma="atroc.*"]

Exploratory process

[frlemma="analys.*"]

Meaning making

[frlemma="je"][]?[frlemma="comprendre"][word="que"]

FINAL DICTIONARY

CQL (Corpus Query Language) request in French



Query language used to interrogate textual databases, enabling the specification of complex search criteria based on the linguistic structure and content of texts.

Interpretation

Exploratory process

Meaning making

[frlemma="atroc.*"]

[frlemma="analys.*"]

[frlemma="je"][]?[frlemma="comprendre"][word="que"]



| | Interpretation | Exploratory process | Meaning Making |
|---------------------------|----------------|---------------------|----------------|
| Number of cql requests | 3 166 | 304 | 1019 |
| Number of annotated words | 227 339 | 75 734 | 35 814 |
| % of annotated words | 13,2% | 4,4% | 2,1% |

(Number of words in the corpus : 1 716 271)

ANNOTATION AND COLOR PROJECTION

In our 153 narratives of Paris November, 2015 terrorist attacks:
example



Interpretation

Exploratory process

Meaning making

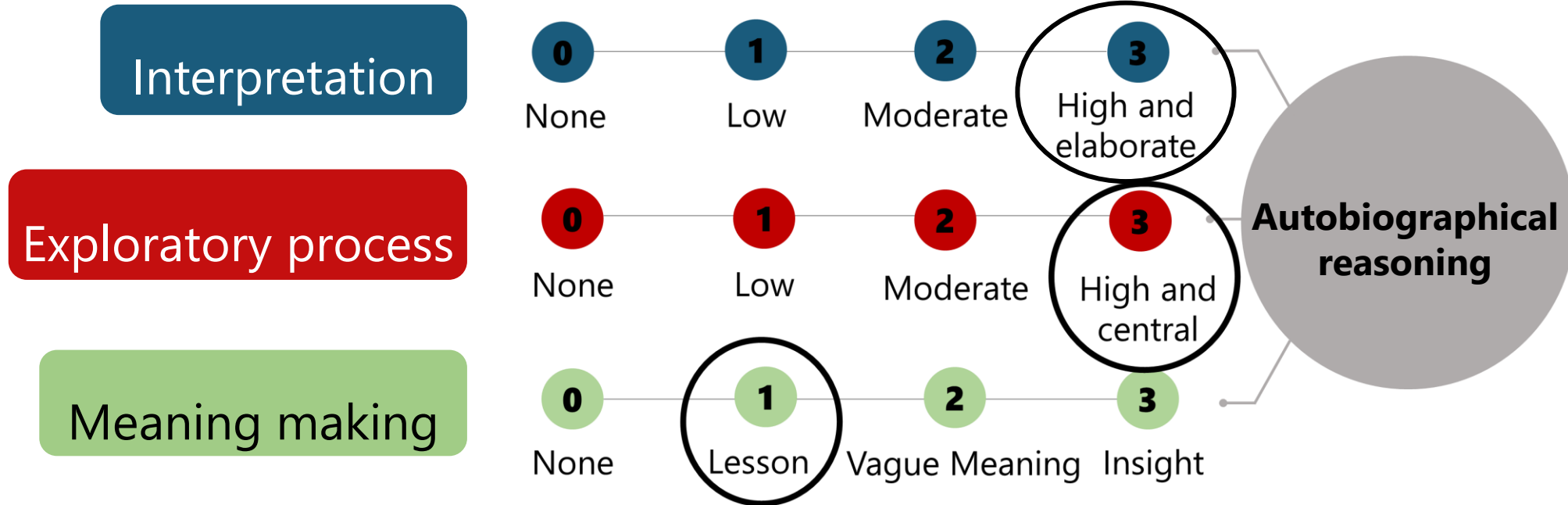
Extract from the testimony of a subject exposed to the Bataclan attacks :

*"I'm **trying to understand** because it's so uh... because **I think intellectualizing** means taking back a little power over something that's **on the order of barbarism**, the most **atrocious** kind. I wanted to **analyse**.*

*So, **I realize that** if I've **experienced** a terrorist attack, statistically, there's very little chance of a second one. It's **stupid**, but... **it helps reassure** me."*

ASSESSMENT

Likert Scales (double judge rating):
exemple



Validation set (25 narratives of Paris November, 2015 terrorist attacks)

15 exposed subjects
10 unexposed subjects

Beforehand

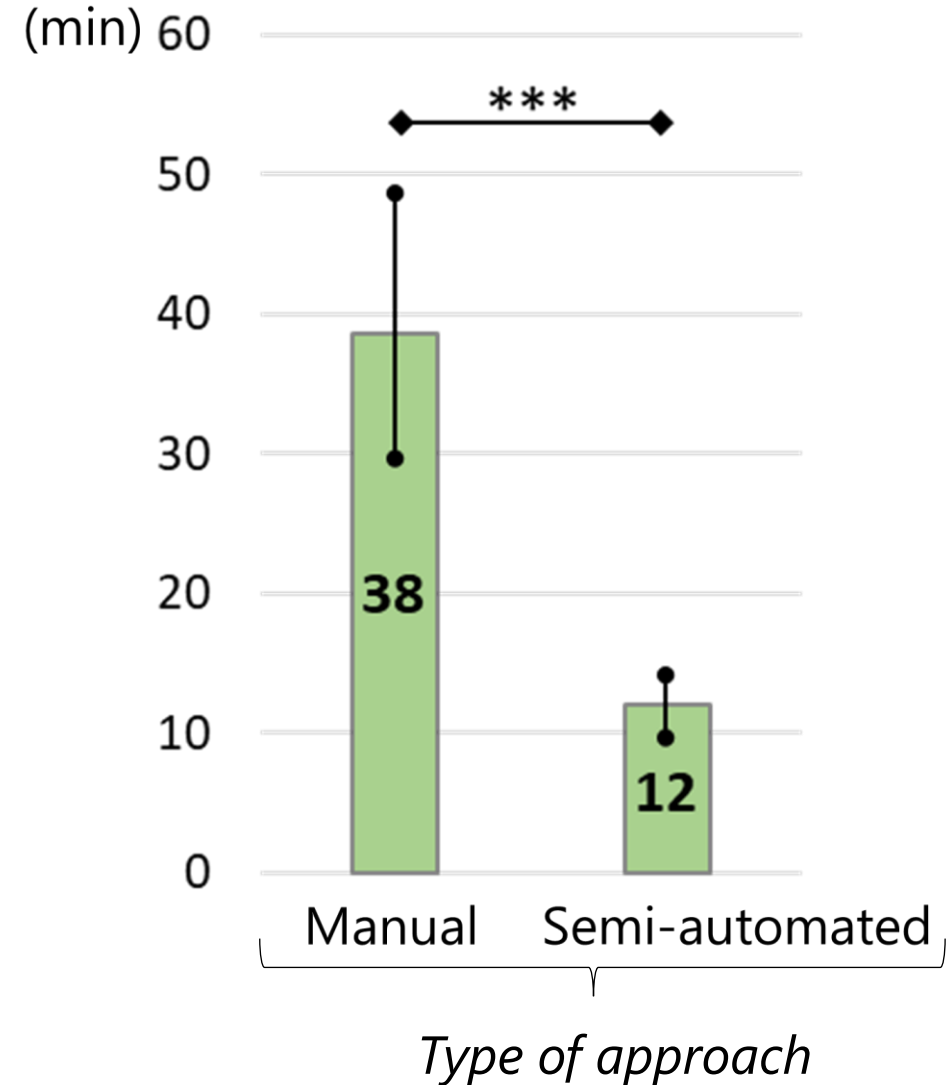
Training judges in quotation :

- 15 independently rated narratives without color projection (*Manual approach*)
- 10 independently rated narratives with color projection (*Semi-automated approach*)
- Working sessions to reduce disagreements

CALCULATING RATING TIME

Quicker rating time

Meaning making



CALCULATING SENSITIVITY AND SPECIFICITY

Sensitive automatic detection

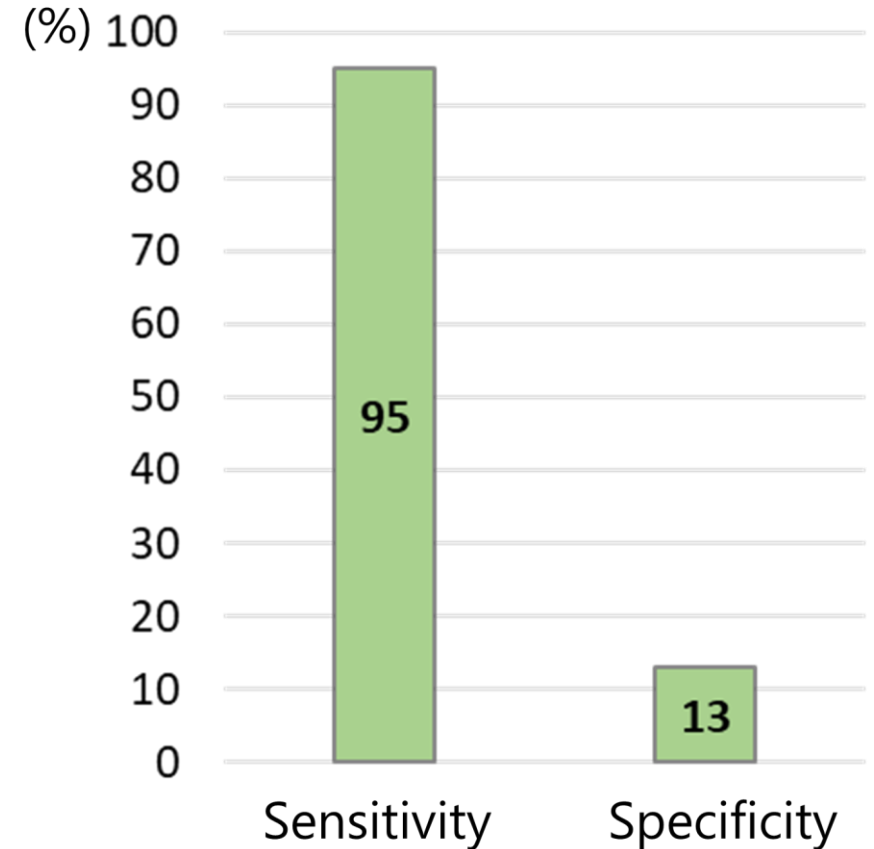
Meaning making

Sensitivity

$$\frac{\text{Meaning-making occurrences identified by semi-automation and considered valid manually}}{\text{Meaning-making occurrences identified manually}} \%$$

Specificity

$$\frac{\text{Meaning-making occurrences identified by semi-automation and considered valid manually}}{\text{Meaning-making occurrences identified by semi-automation}} \%$$



LIMITATIONS

This semi-automated approach has only been tested with trauma narratives of terrorist attacks.
The sensitivity of automatic autobiographical reasoning detection needs to be evaluated in other narrative themes.

This semi-automated approach still needs a human rating and the training judges is time-consuming.
If the sensitivity and the specificity of the interpretation dimension are satisfactory, a fully automatic calculation could be envisaged.

Results concerning the variables of interpretations and exploratory process are to come...

THANK YOU FOR YOUR INTEREST !

CORRESPONDING AUTHOR



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