

CHAOS *from* TO CRUX

Turning scattered personal blogs into
organized, searchable climbing data

by Aina Abad & Maria Salvany



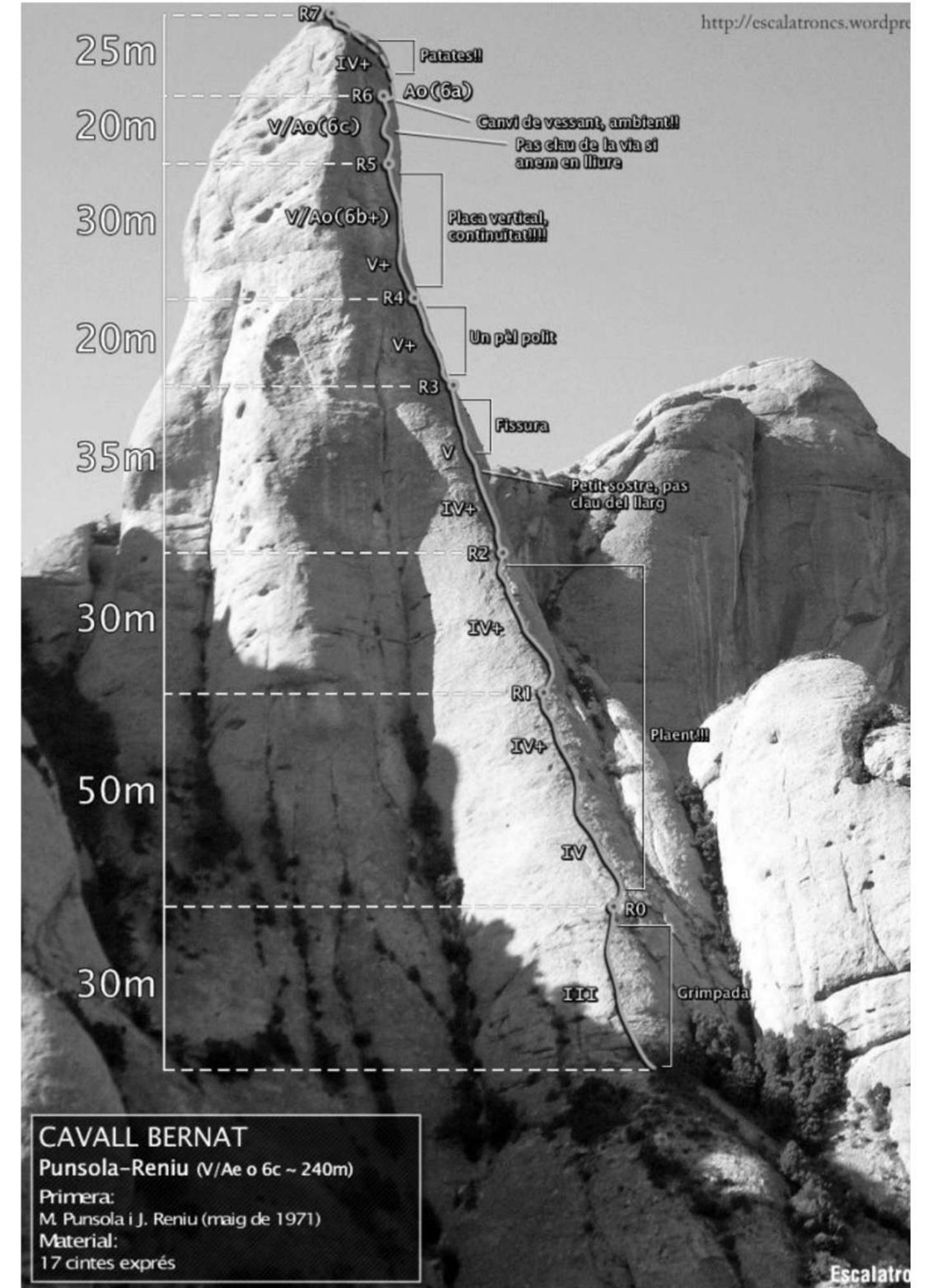
INTRODUCTION



CLIMBING A MULTI-PITCH ROUTE



WALLS, ROUTES & TOPOS



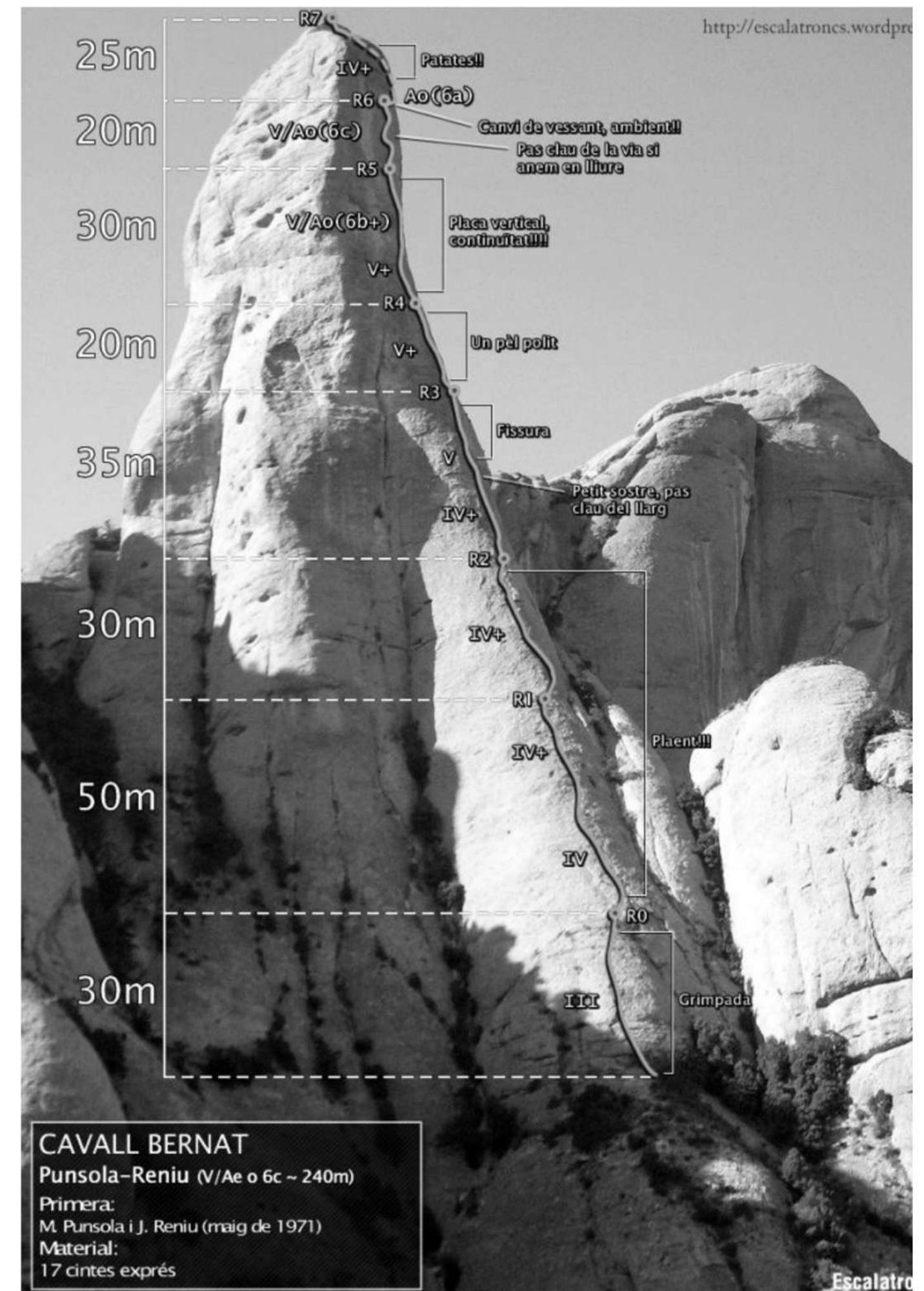
CLIMBING ROUTE KEY INFORMATION

<http://escalatrons.wordpress.com>

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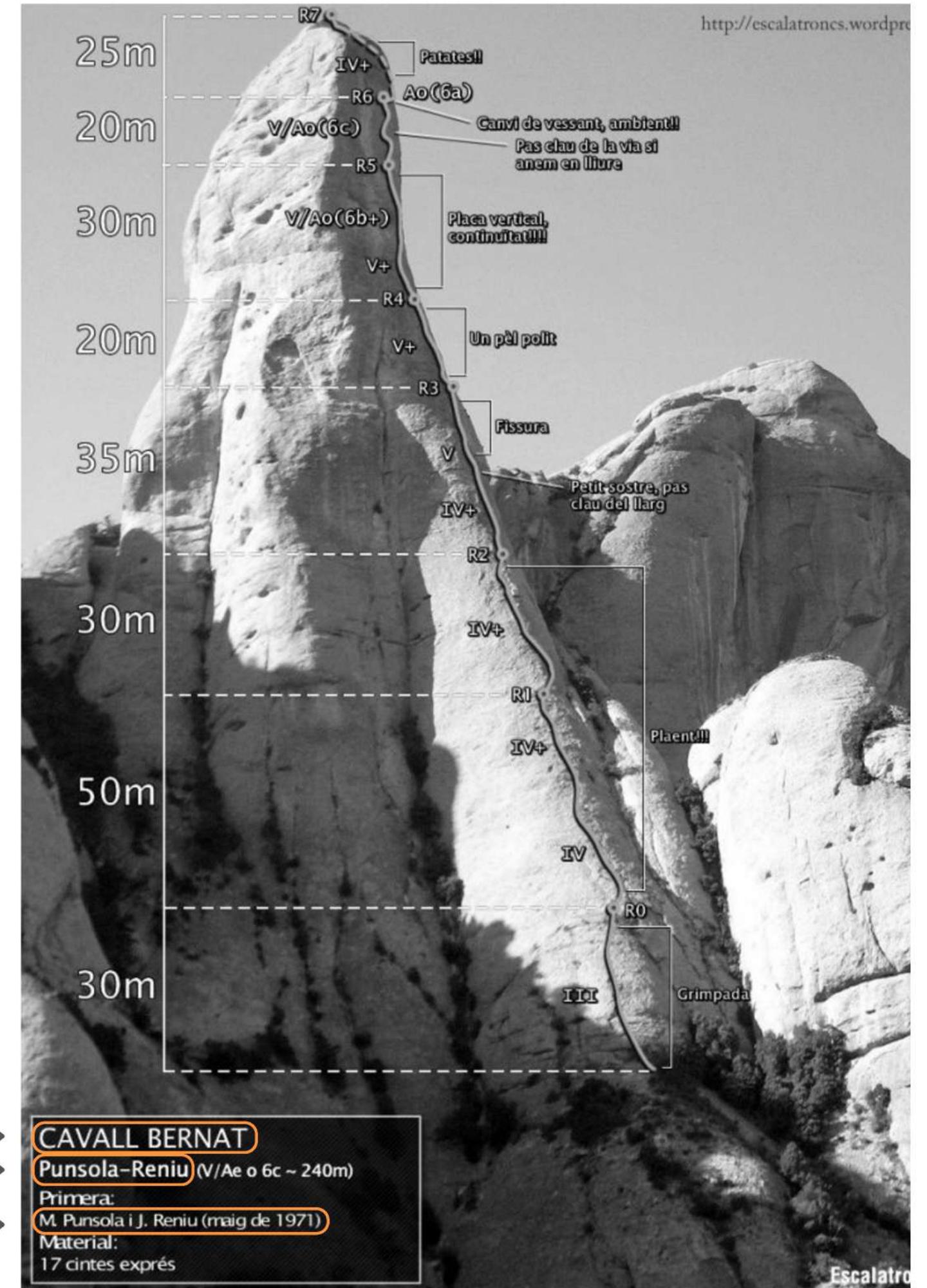
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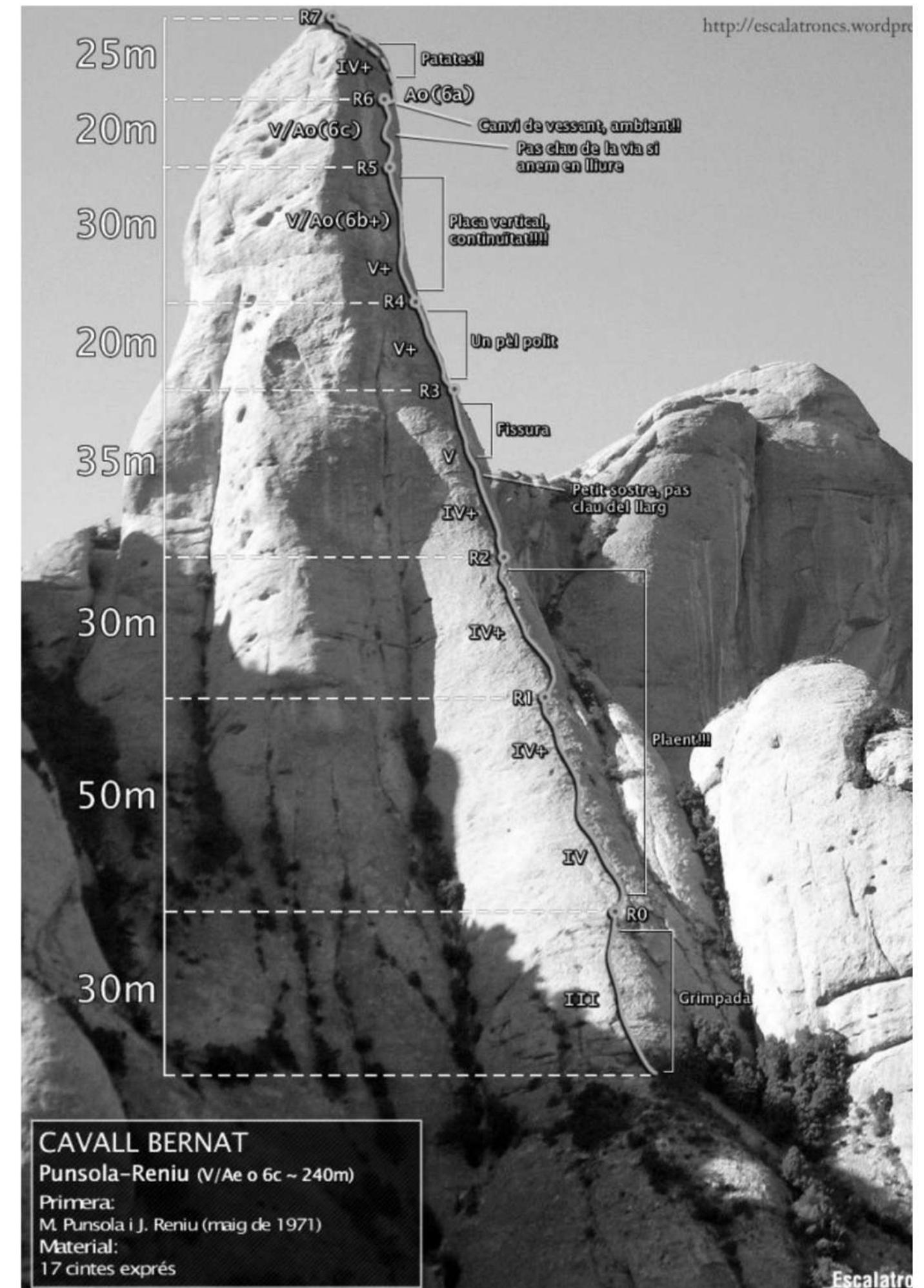
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- **Lengh:** 240m
- **Pitches:** 8
- **Orientation:** N/S/E/W/NE/NW/SE/SW
- **Approach time:** 30min
- **Descent:** Rappel
- **Fixed equipment:** Yes
- **Gear to bring:** 17 quick draws



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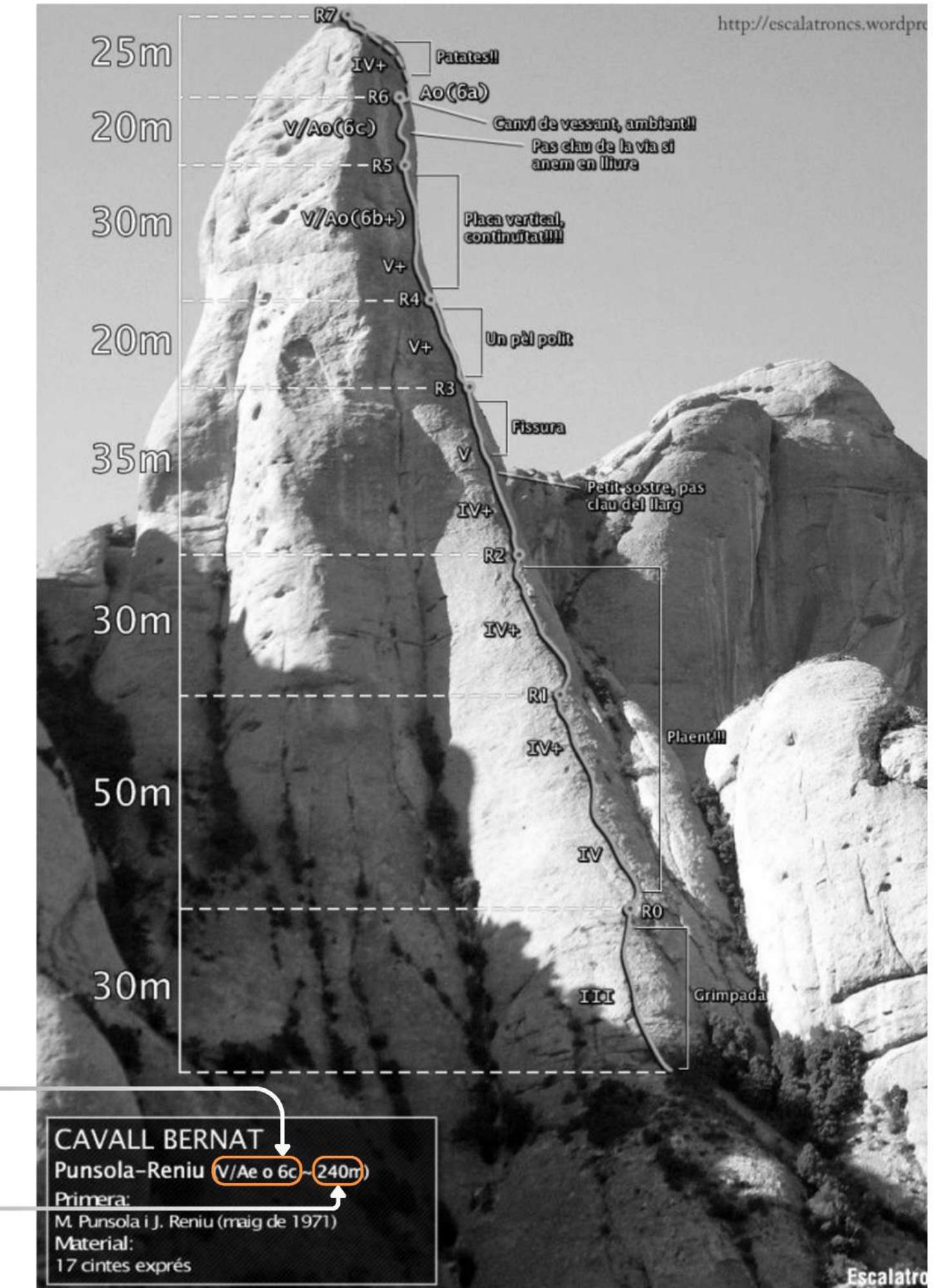
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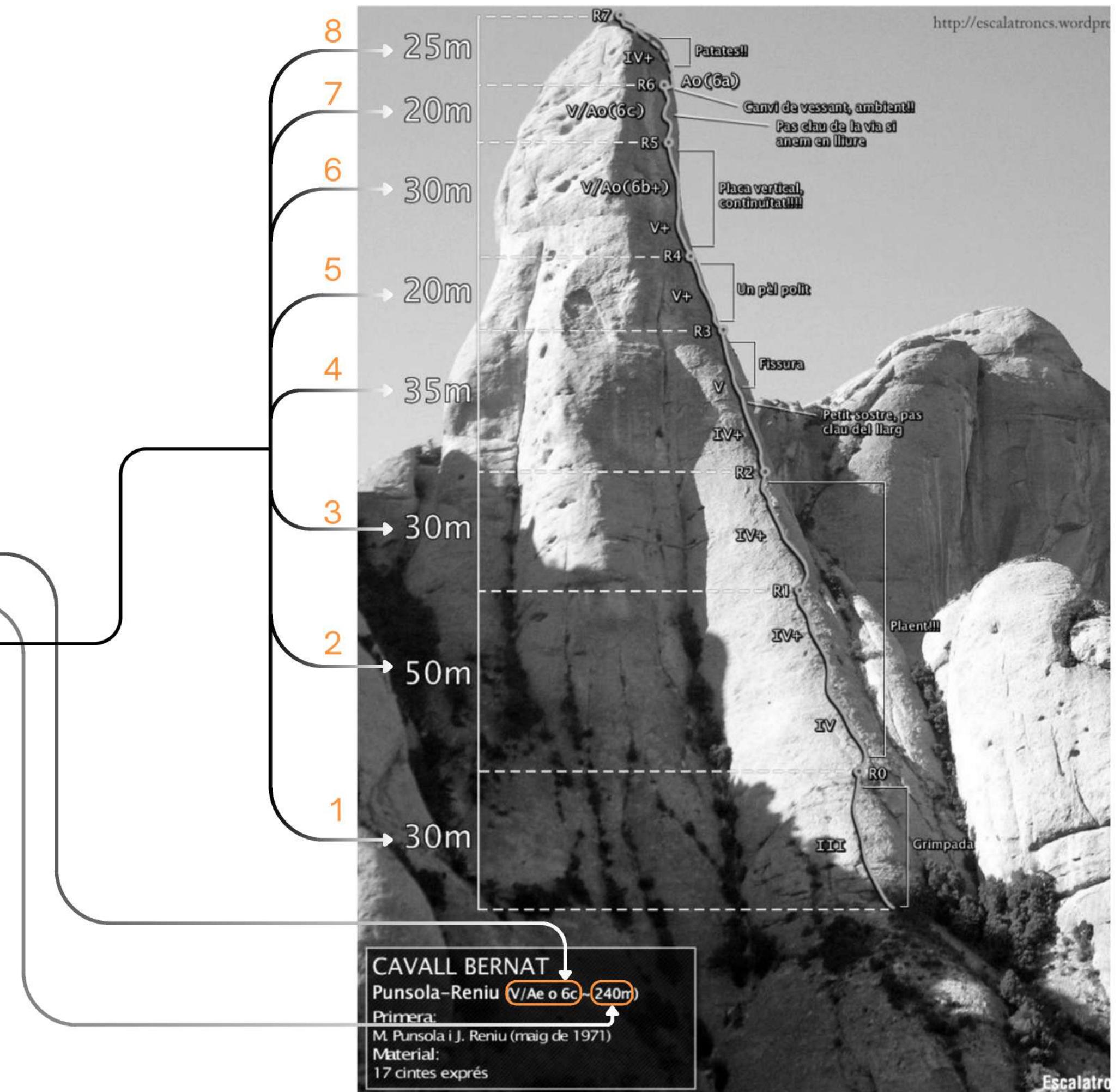
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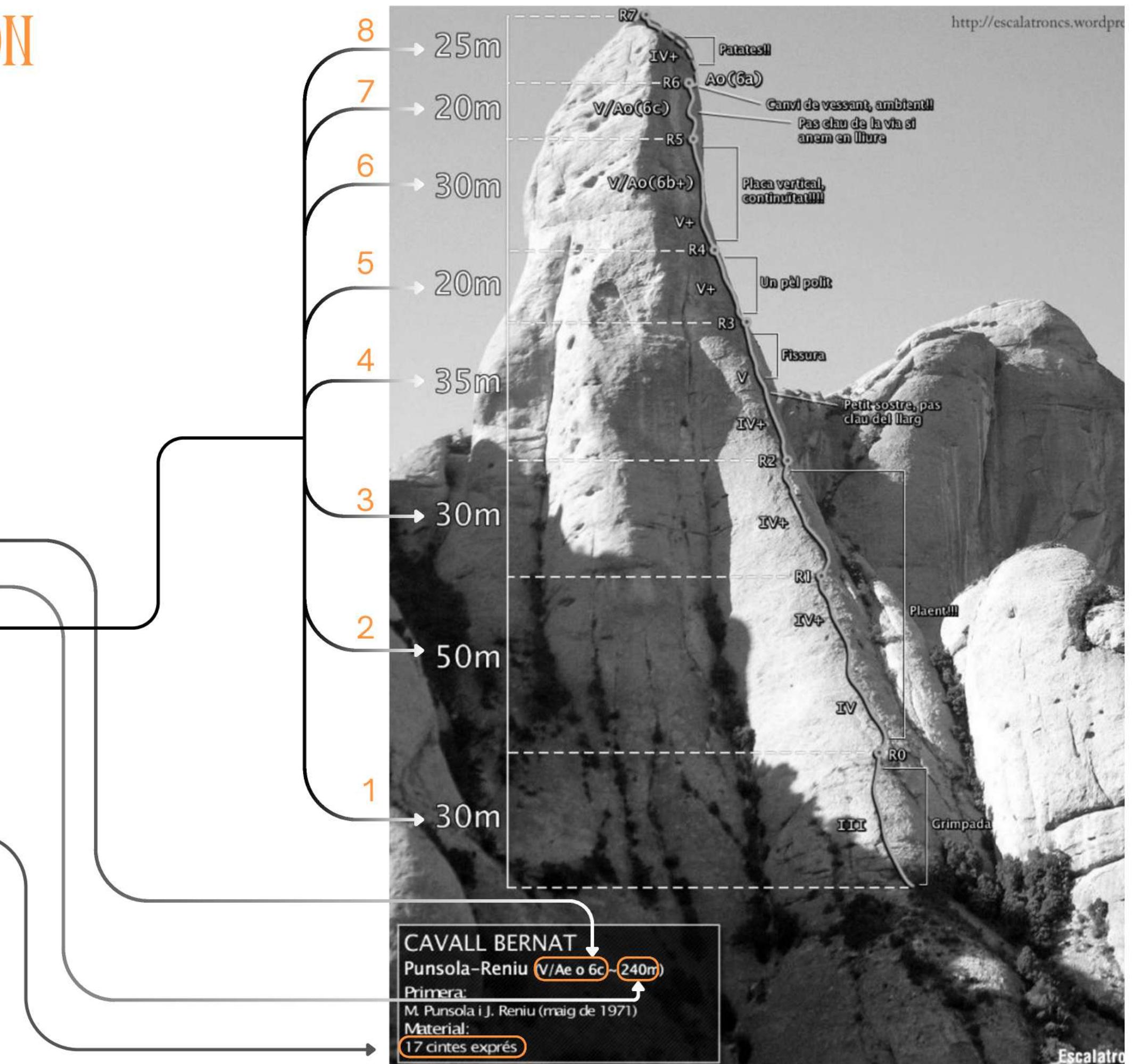
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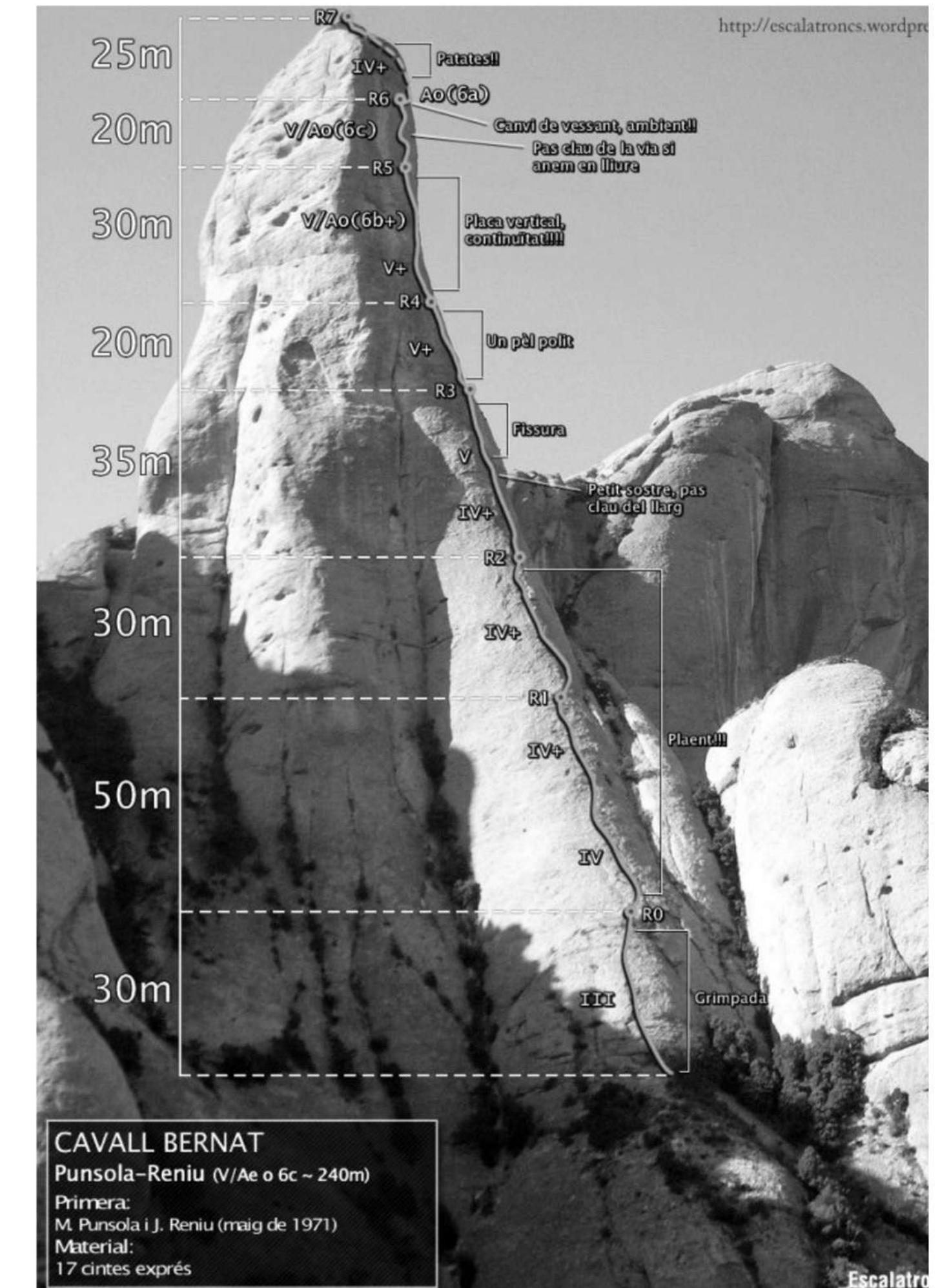
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ROUTE INFORMATION IS **BASIC** TO PLAN A CLIMBING DAY

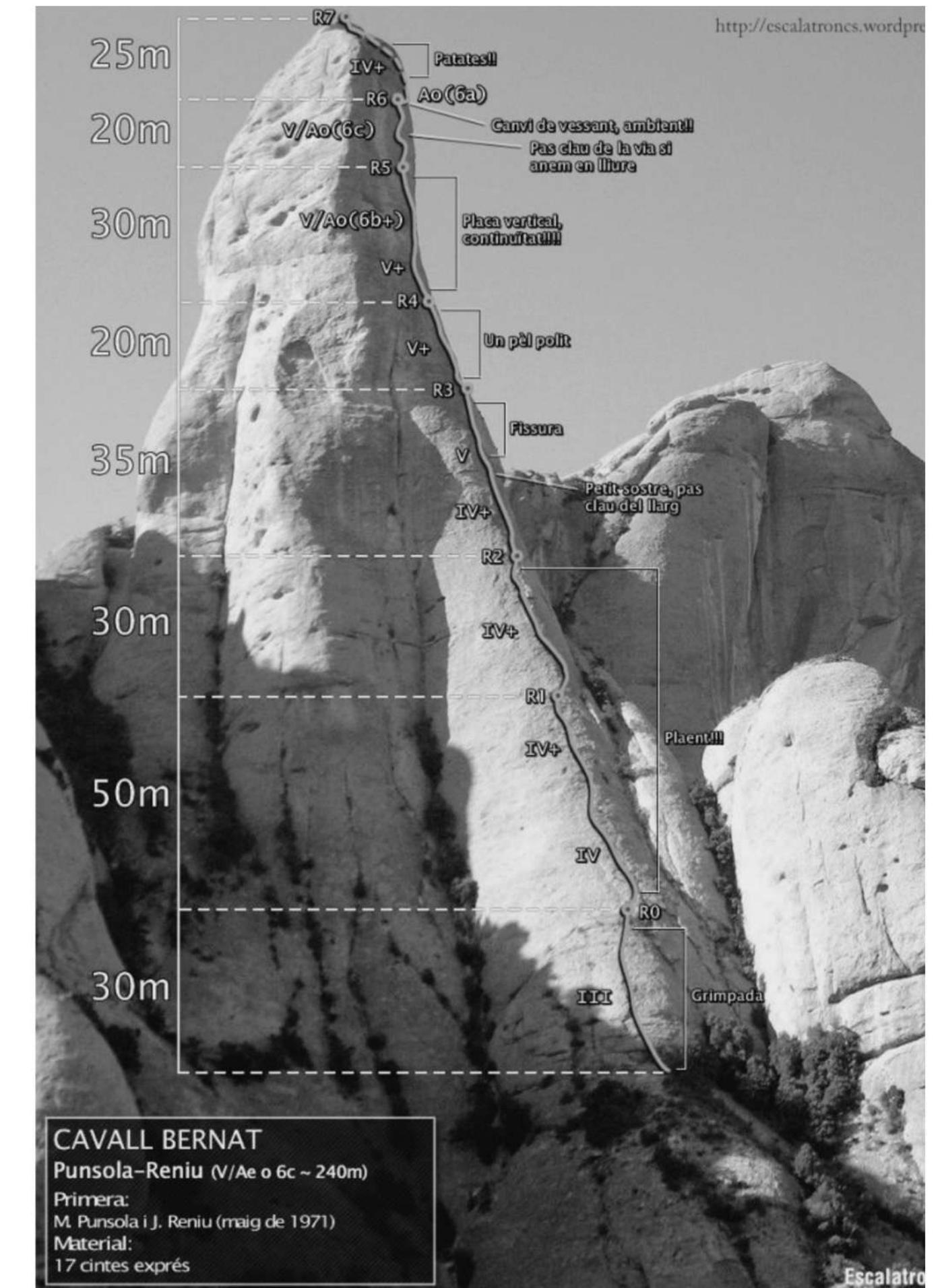


HOW DO CLIMBERS FIND ROUTE INFO TODAY? ■



LOOKING FOR ROUTE INFORMATION NOWADAYS

<http://escalatrones.wordpress.com>



LOOKING FOR ROUTE INFORMATION NOWADAYS



Punsola-Reniu "Cavall Bernat" (Montserrat)



Blogger.com
<http://fanaticlimb.blogspot.com> › 2017/08 › via-punsola-... ::

Via Punsola-Reniu al Cavall Bernat

8 d'ag. 2017 — Aparcament i aproximació: podem deixar el vehicle a l'aparcament del Refugi de Santa Cecília i agafar el camí de l'Arrel direcció al Monestir ...



El col·leccionista de vies
<https://elcoleccionistadevies.blogspot.com> › 2020/05 › r... ::

Records des del "confinament". Vía Punsola-Reniu al ...

20 de maig 2020 — Vía Punsola-Reniu al Cavall Bernat. 12 d'octubre de 1985.
Ressenyes que vaig dibuixar després de escalar la Punsola. Va ser cap al setembre de ...



Els Cinc Peus al Gat.
<http://boulderinbcn.blogspot.com> › ... · Tradueix aquesta pàgina ::

Ascensión Cavall Bernat "Via Punsola-Reniu, 6c o V/Ae

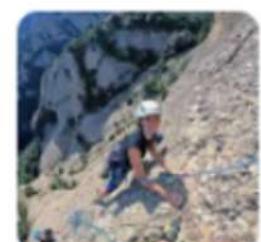
12 de juny 2016 — El Cavall Bernat es una Agulla de la muntanya de Montserrat ubicada en la comarca del Bages, sobre el límite entre los municipios de ...



Jesus Ibarz
<https://jesusibarzguiadeescalada.com> › ... · Tradueix aquesta pàgina ::

CAVALL BERNAT ✓ Punsola-Reniu con Guía

La Punsola-Reniu al Cavall Bernat en Montserrat es una de las vías de largos más emblemáticas de Montserrat y de Barcelona. Con 250 metros de escalada, y un ...



5,0 ★★★★★ (24) ⓘ

Blogger.com
<https://raulsakisworld.blogspot.com> › ... · Tradueix aquesta pàgina ::

vía Punsola Reniu al Cavall Bernat 240mt 6c (V+ A0)

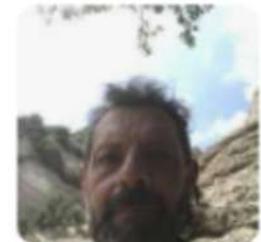
Escalando el estandarte de Montserrat- vía Punsola Reniu al Cavall Bernat 240mt 6c (V+ A0) ... Después de caminar un buen rato hasta la altura del ...



Skalatopi
<https://www.skalatopi.com> › ... · Tradueix aquesta pàgina ::

Montserrat - Cavall Bernat - Punsola Reniu 6c 240 m.

23 de jul. 2023 — Un sueño hecho realidad, subir a la cima del Cavall Bernat por la vía Punsola Reniu en libre. Gracias a mi compañero de cordada Dani Pasarin la ...



Inconsistent naming: Same route, different titles

LOOKING FOR ROUTE INFORMATION NOWADAYS

rocacalenta.com
may 2013



Roca calenta

Inici > Vies > Barcelona > Montserrat > Sant Salvador > Punsola-Reniu al Cavall Bernat (Montserrat)

Sant Salvador

Punsola-Reniu al Cavall Bernat (Montserrat)

11 de maig de 2013

Oberta el 23/5/1971 per Manel Punsola i Jesús Reniu. Es una preciositat de via, amb un traçat molt evident i elegant. Als primers llargs les assegurances allunyen (es pot posar algun friend), però a mida que es va posant vertical, la via està generosament equipada. Una via amb molt ambient i ràpida de fer, un itinerari del tot recomanable i dels més repetits de tot Montserrat.

Orientació

Nord-est

Aproximació

Des de Santa Cecília ([enllaç a Google Maps](#)) prenem el Camí de l'Arrel en direcció al Monestir. A l'alçada del Cavall prenem un corriol amunt fins al peu de via.

Material

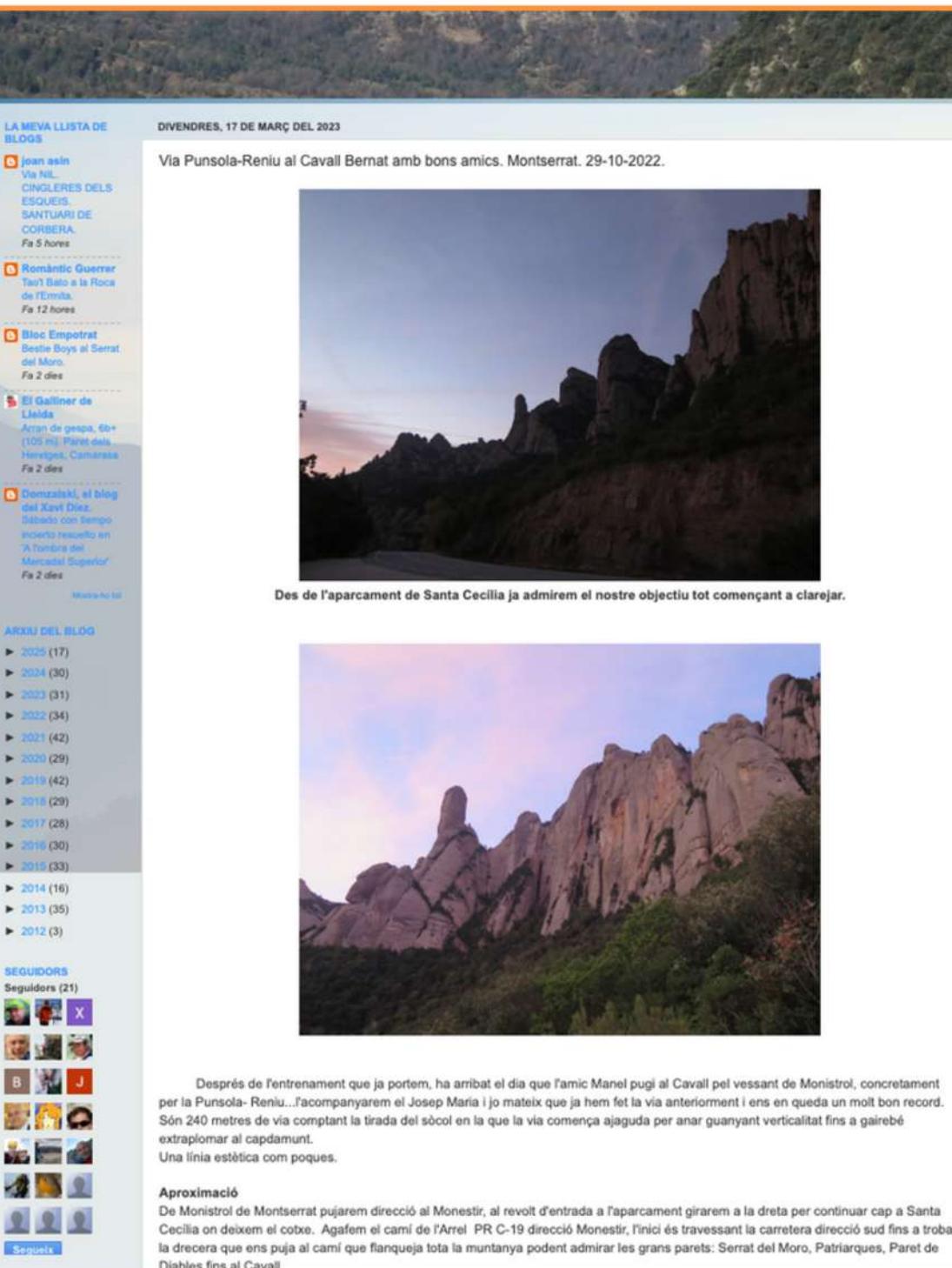
13 cintes i frius de fins al Camotet #0-75

1

Dos ràpels per la via normal, el primer de 20 m fins a sobre de la berruga, i el segon d'uns 50 m fins al terra.

Cordada

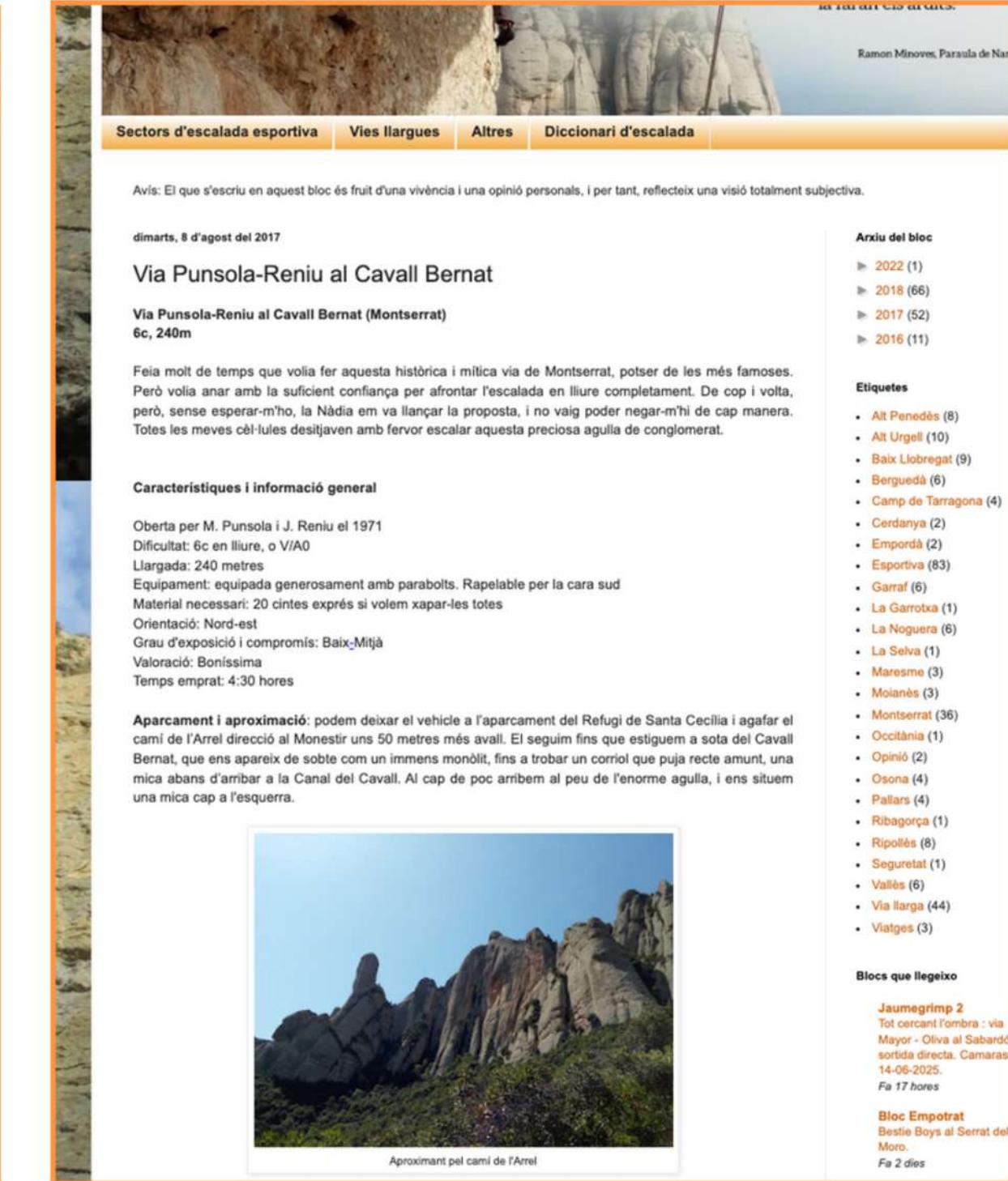
■ jaumegrimp2.blogspot.com
may 2023



prés de l'entrenament que ja portem, ha arribat el dia que l'amic Manel pugi al Cavall pel vessant de Monistrol, concretament a l'illa- Reniu...l'acompanyarem el Josep Maria i jo mateix que ja hem fet la via anteriorment i ens en queda un molt bon recorregut de via comptant la tirada del sòcol en la que la via comença ajaguda per anar guanyant verticalitat fins a gairebé ar al capdamunt.

Aproximació
De Monistrol de Montserrat pujarem direcció al Monestir, al revolt d'entrada a l'aparcament girarem a la dreta per continuar cap a Santa Cecilia on deixem el cotxe. Agafem el camí de l'Arrel PR C-19 direcció Monestir, l'inici és travessant la carretera direcció sud fins a trobar una drecera que ens puja al camí que flanqueja tota la muntanya podent admirar les grans parets: Serrat del Moro, Patriarques, Paret de Diables fins al Cavall.

fanaticclimb.blogspot.com
august 2017



Aproximant pel camí de l'Am

Bloc Empotrat
Bestie Boys al Serrat del
Moro.
Fa 2 dies

Once inside the blogs... things vary even more

THE UNMET NEED

We Need a Unified, Structured Source

Right now, there is **no single platform** where climbers can find **structured, complete, and up-to-date** information about multi-pitch climbing routes in Catalonia.

We need a space that **brings together all the available blog entries**, organizes the content, and makes it easily searchable and useful for everyone.



PROJECT GOALS ■



WHAT ARE WE BUILDING?



■ UNIFIED ROUTE PLATFORM

Structured display of all blog entries referring to the same route.



■ ADVANCED SEARCH ENGINE

Filtered exploration by location, difficulty, orientation, or equipment.



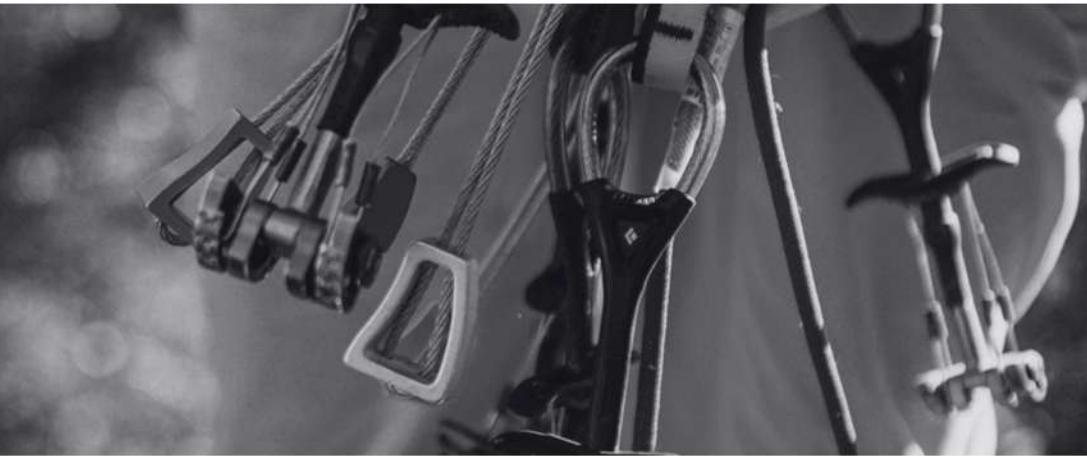
■ RECOMMENDATION SYSTEM

Suggestions based on user profiles and previous climbs.

METHODOLOGY ■



STEP 1. DATA COLLECTION – WEB SCRAPING



- **Sources:** 7 personal climbing blogs (written in catalan)
- **Blog entries:** 12426 (from 2008 to 2025)
- **Scraped:** title, text, date & URL
- **Cleaned:** removed HTML, normalized text



STEP 2. EXTRACTING OBJECTIVE INFORMATION

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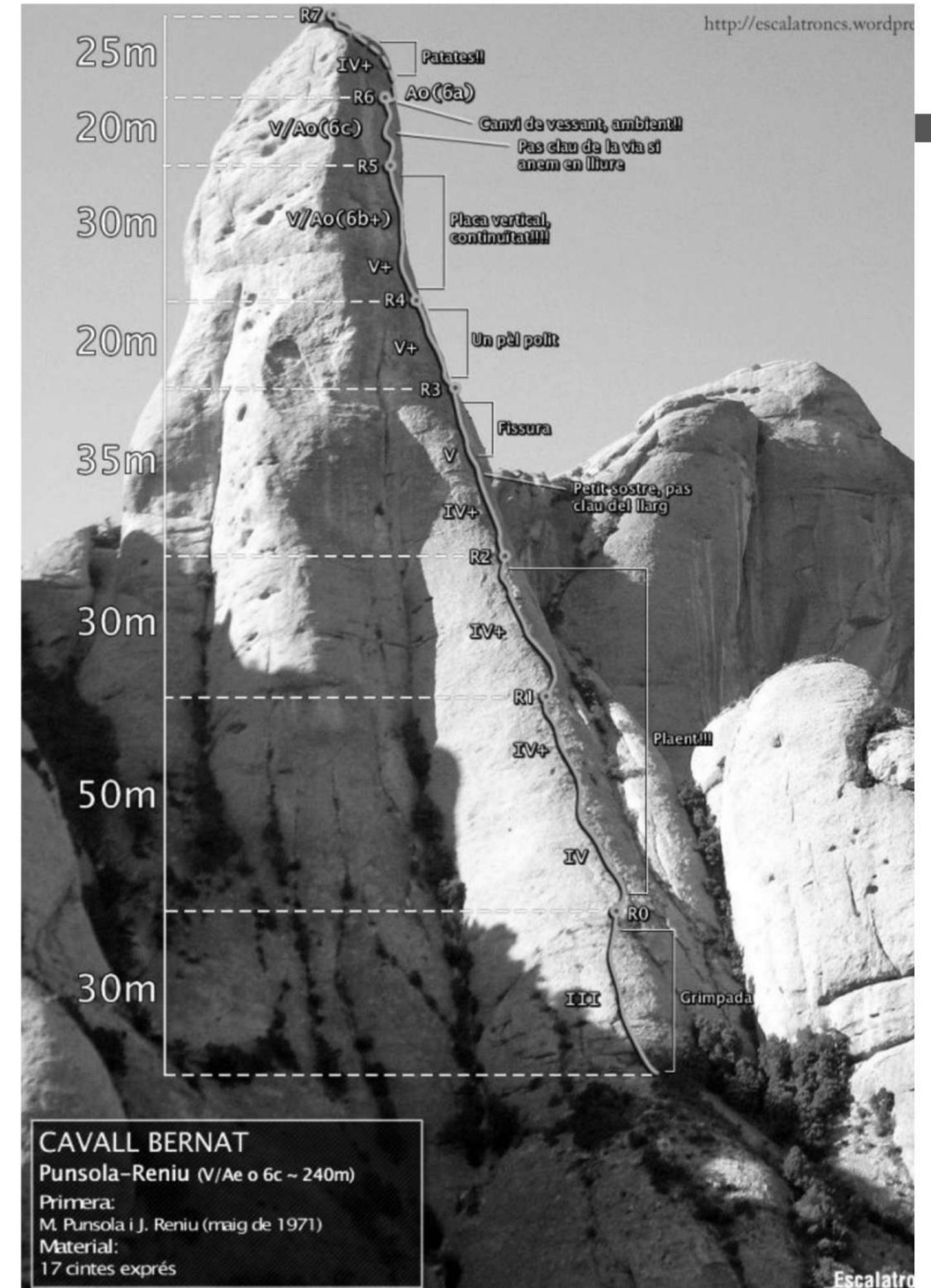
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using **custom regex patterns** and **rule-based parsing**

dimarts, 8 d'agost del 2017

Via Punsola-Reniu al Cavall Bernat

Via Punsola-Reniu al Cavall Bernat (Montserrat)
6c, 240m

Feia molt de temps que volia fer aquesta històrica i mítica via de Montserrat, potser de les més famoses. Però volia anar amb la suficient confiança per afrontar l'escalada en lliure completament. De cop i volta, però, sense esperar-m'ho, la Nàdia em va llançar la proposta, i no vaig poder negar-m'hi de cap manera. Totes les meves cèl·lules desitjaven amb fervor escalar aquesta preciosa agulla de conglomerat.

Característiques i informació general

Oberta per M. Punsola i J. Reniu el 1971
Dificultat: 6c en lliure, o V/A0
Llargada: 240 metres
Equipament: equipada generosament amb parabolts. Rapelable per la cara sud
Material necessari: 20 cintes exprés si volem xapar-les totes
Orientació: Nord-est
Grau d'exposició i compromís: Baix-Mitjà
Valoració: Boníssima
Temps emprat: 4:30 hores

Aparcament i aproximació: podem deixar el vehicle a l'aparcament del Refugi de Santa Cecília i agafar el camí de l'Arrel direcció al Monestir uns 50 metres més avall. El seguim fins que estiguem a sota del Cavall Bernat, que ens apareix de sobte com un immens monòlit, fins a trobar un corriol que puja recte amunt, una mica abans d'arribar a la Canal del Cavall. Al cap de poc arribem al peu de l'enorme agulla, i ens situem una mica cap a l'esquerra.

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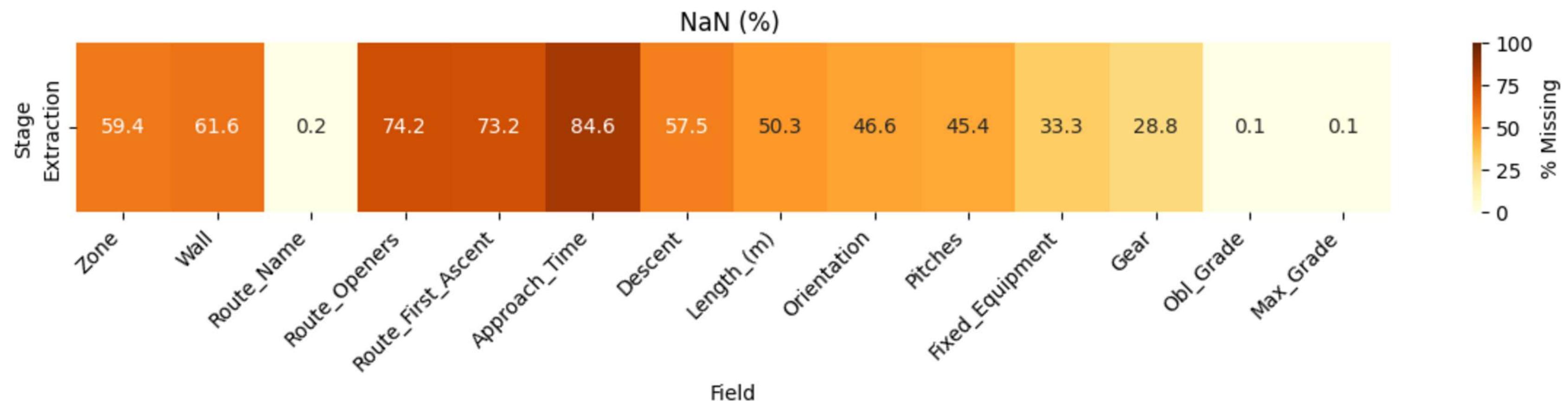
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STEP 2. EXTRACTING OBJECTIVE INFORMATION



STEP 3. NAME UNIFICATION

Original Title	Zone	Wall	Route
Via Punsola-Reniu. Paret de Diables. MONTSERRAT	Montserrat	Paret de Diables	Punsola-Reniu
Punsola Reniu - Diables - Montserrat	Montserrat	Diables	Punsola Reniu
Paret dels Diables - Via Punsola - MONTSERRAT	Montserrat	Paret dels Diables	Punsola
Via Punsola Reniu, MONTSERRAT	Montserrat	Diables	Punsola Reniu
Punsola - Reniu, Diables	Montserrat	Diables	Punsola Reniu
Paret de Diables - Punsola-Reniu	Montserrat	Paret de Diables	Punsola-Reniu
Via Punsola-Reniu, Montserrat, Diables	Montserrat	Diables	Punsola-Reniu

Unified Wall	Unified Route
Paret dels Diables	Punsola-Reniu

People name routes differently. We just help the data speak a common language.

STEP 4. FILLING THE GAPS – ML VS RULE-BASED

A. SUPERVISED ML

NaN (%)

Stage	Zone	Wall	Route
Before	59.4	61.4%	0.2

Metrics	Zone	Wall
Accuracy	45%	32%
Precision	38%	29%
F1-score	41%	30%

Original Title	True Wall	ML Wall
<i>Via dels Sostres, Paret de l'Aeri, Montserrat</i>	Paret de l'Aeri	Paret de la Codolosa
Esperó de les Orenetes (Montserrat)	Paret de les Orenetes	Paret del Pont
<i>Via Racs, Agulla del Senglar</i>	Agulla del Senglar	Paret del Dispensari
<i>Via Blava (equipada), 6a, 120m</i>	[unknown]	Paret del Gat
<i>Integral del Gall, 7a obligat, 230m</i>	Roca de la Lluna	Paret del Triomf

*By leveraging fuzzy/exact matches and domain logic,
we propagated information with high precision and full interpretability.*

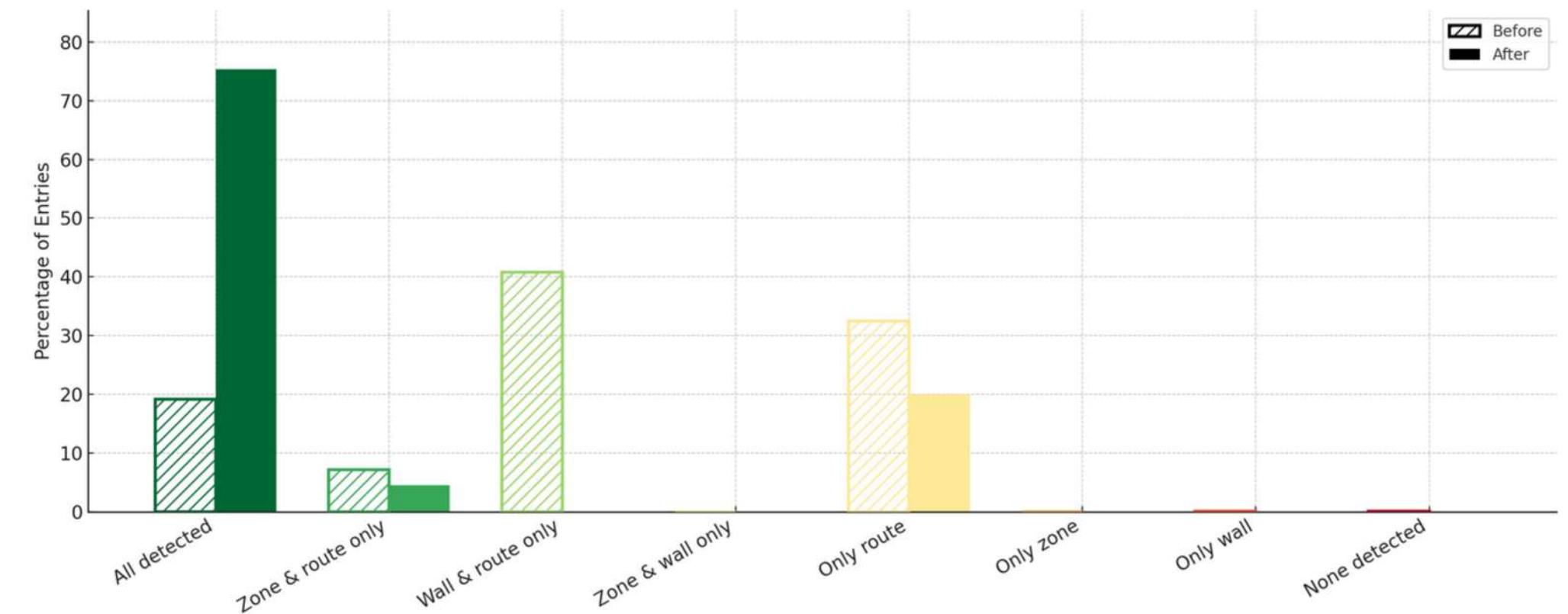
STEP 4. FILLING THE GAPS – ML VS RULE-BASED

B. RULE-BASED PROPAGATION

NaN (%)

Stage	Zone	Wall	Route
Before	59.4	61.4%	0.2
After	20%	24.5%	0.1

Filled (%)



*By leveraging fuzzy/exact matches and domain logic,
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STEP 5. ROUTE MATCHING

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
1	Route_ID	Route	Wall	Zone	Max_Grad	Obl_Grade	Pitches	Length_(m)	Orientation	Fixed_Equip	Gear	Approach_T	Descent	Route_open	Route_
330	Z20-W123-R960	Campions	La Paret De La Codolesa	Montserrat	6a	V/A0		20.0	S		cintes express		Rapel		
612	Z20-W123-R960	Campions	La Paret De La Codolesa	Montserrat	6a+	6a+	3.0	50.0		Yes (spits)	cintes express				
754	Z20-W123-R960	Campions	La Paret De La Codolesa	Montserrat	6a	5b/Ae	2.0		S	Yes (parabolts)	cintes express		Walking		Joan Asin, Joan 2011.0
986	Z20-W123-R960	Campions	La Paret De La Codolesa	Montserrat	V	V	3.0						Rapel		
1010	Z20-W123-R960	Campions	La Paret De La Codolesa	Montserrat	6a	6a	3.0	35.0		Semi (parabolts)	cintes express, estreps				
1453	Z20-W123-R960	Campions	La Paret De La Codolesa	Montserrat	V	V	3.0								
2104	Z20-W214-R960	Campions	Roca De Les Onze Hores	Montserrat	V+	V+	3.0	35.0		Yes (parabolts)	cintes express				
2188	Z20-W123-R960	Campions	La Paret De La Codolesa	Montserrat	V	V	3.0	35.0			cintes express		Walking		
2196	Z20-W123-R960	Campions	La Paret De La Codolesa	Montserrat	6a	6a	3.0	35.0			cintes express, bagues		Walking		
2248	Z20-W46-R1455	Del Cabra	El Bisbe	Montserrat	V+	V+	3.0	65.0		Yes (parabolts)			Rapel		
2313	Z31-W214-R1455	Del Cabra	Roca De Les Onze Hores	Sant Llorenç del Munt	6a	6a	5.0	2012.0		Yes (parabolts)					
2342	Z20-W46-R1455	Del Cabra	El Bisbe	Montserrat	6a	5b+/AD	4.0	40.0	O	Semi (parabolts)	cintes express, ± 40.0				Isabel Notivoli, J 1985.0
2357	Z20-W46-R1455	Del Cabra	El Bisbe	Montserrat	V	V	3.0		O	Yes (parabolts)	cintes express				
2406	Z20-W46-R1455	Del Cabra	El Bisbe	Montserrat	6a	6a	2.0	35.0	SO	Yes (parabolts)					
2430	Z20-W46-R1455	Del Cabra	El Bisbe	Montserrat	6a	6a	3.0	25.0	N	Yes (parabolts)	cintes express				
2475	Z20-W46-R1455	Del Cabra	El Bisbe	Montserrat	V	V		15.0	O	Yes (parabolts)	cintes express				Jaume Sastre, J 1985.0
2542	Z20-W157-R2073	Entre Linies	Miranda De Can Jorba	Montserrat	V	V	4.0	30.0			bagues				
2615	Z20-W157-R2073	Entre Linies	Miranda De Can Jorba	Montserrat	V	V	4.0				cintes express				
2812	Z20-W157-R2073	Entre Linies	Miranda De Can Jorba	Montserrat	V	V	3.0				bagues		Rapel		
2825	Z20-W157-R2073	Entre Linies	Miranda De Can Jorba	Montserrat	V+	V/A0	1.0	15.0		Yes (parabolts)	cintes express				Antonio Gomez, 2011.0
2835	Z20-W157-R2073	Entre Linies	Miranda De Can Jorba	Montserrat	V	V	3.0						Rapel		
2873	Z20-W157-R2073	Entre Linies	Miranda De Can Jorba	Montserrat	V	V	2.0								
2884	Z20-W157-R2073	Entre Linies	Miranda De Can Jorba	Montserrat	V	V	4.0				bagues				Antoni Gomez, J 2011.0
2902	Z16-W178-R2081	Epirimountains	Paret Del Devessó	Malanyeu	V+/A1	V+/A1			E	Yes (spits)	cintes express, camalots, cordino	Rapel			
2987	Z16-W178-R2081	Epirimountains	Paret Del Devessó	Malanyeu	6a	6a	3.0		O	Yes (spits)					
2993	Z16-W178-R2081	Epirimountains	Paret Del Devessó	Malanyeu	6a+	6a+	3.0		S	Yes (spits)	cintes express		Walking		F. Sunol, Felip Li 2006.0
3071	Z16-W178-R2081	Epirimountains	Paret Del Devessó	Malanyeu	V+	V+	4.0	50.0		Yes (spits)	cintes express		Rapel		
3084	Z16-W178-R2081	Epirimountains	Paret Del Devessó	Malanyeu	V	V	3.0	35.0		Yes (spits)					
3090	Z16-W178-R2081	Epirimountains	Paret Del Devessó	Malanyeu	6a	6a	3.0		S	Yes (spits)	cintes express				Francesc Sunol, 2006.0
3159	Z20-W151-R2662	Ignasi Jorba	Magdalena Superior	Montserrat	V	V/A0		10.0	NE	Yes (parabolts)	cintes express				
3200	Z20-W151-R2662	Ignasi Jorba	Magdalena Superior	Montserrat	V+	V+				Yes (parabolts, spits)					
3250	Z20-W151-R2662	Ignasi Jorba	Magdalena Superior	Montserrat	V+	V+	2.0			Yes (parabolts)	cintes express				
3263	Z20-W151-R2662	Ignasi Jorba	Magdalena Superior	Montserrat	5c	5c	4.0	25.0	E	Yes (parabolts)	cintes express		Walking		Agusti Cardona, 1992.0
3301	Z20-W151-R2662	Ignasi Jorba	Magdalena Superior	Montserrat	V	V		60.0			cintes express				
3347	Z20-W151-R2662	Ignasi Jorba	Magdalena Superior	Montserrat	V	V	3.0	60.0					Walking		

“Climbing blogs are not noisy — they’re diverse. Our goal is to connect them, not simplify them.”

STEP 6. SENTIMENT ANALYSIS

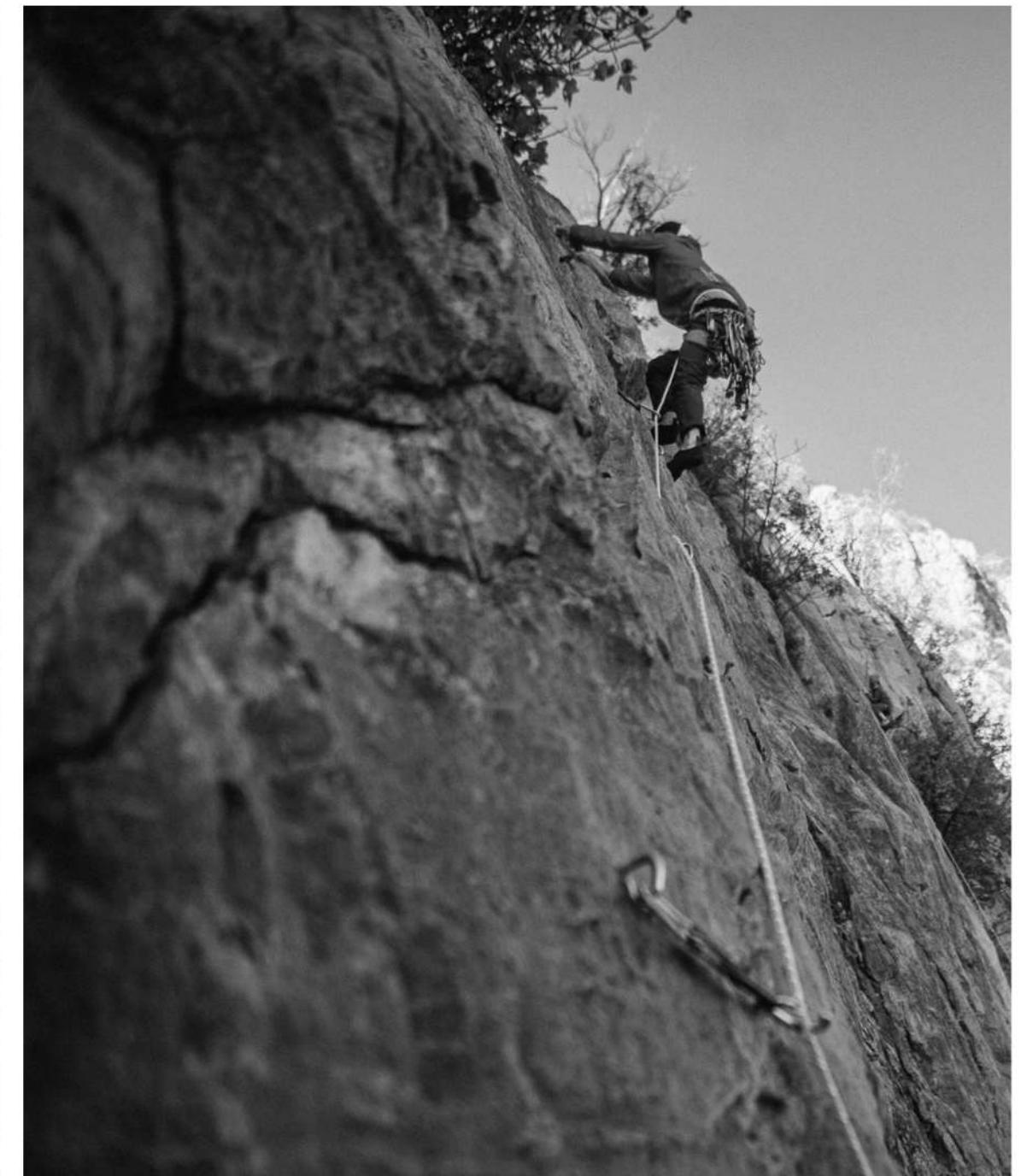
What are we interested in?

- Route beauty

Positive: Highly recommended



Negative: Not recommended



STEP 6. SENTIMENT ANALYSIS

What are we interested in?

- Route beauty
- Rock quality

Positive: Good rock quality



Negative: Bad quality rock



STEP 6. SENTIMENT ANALYSIS

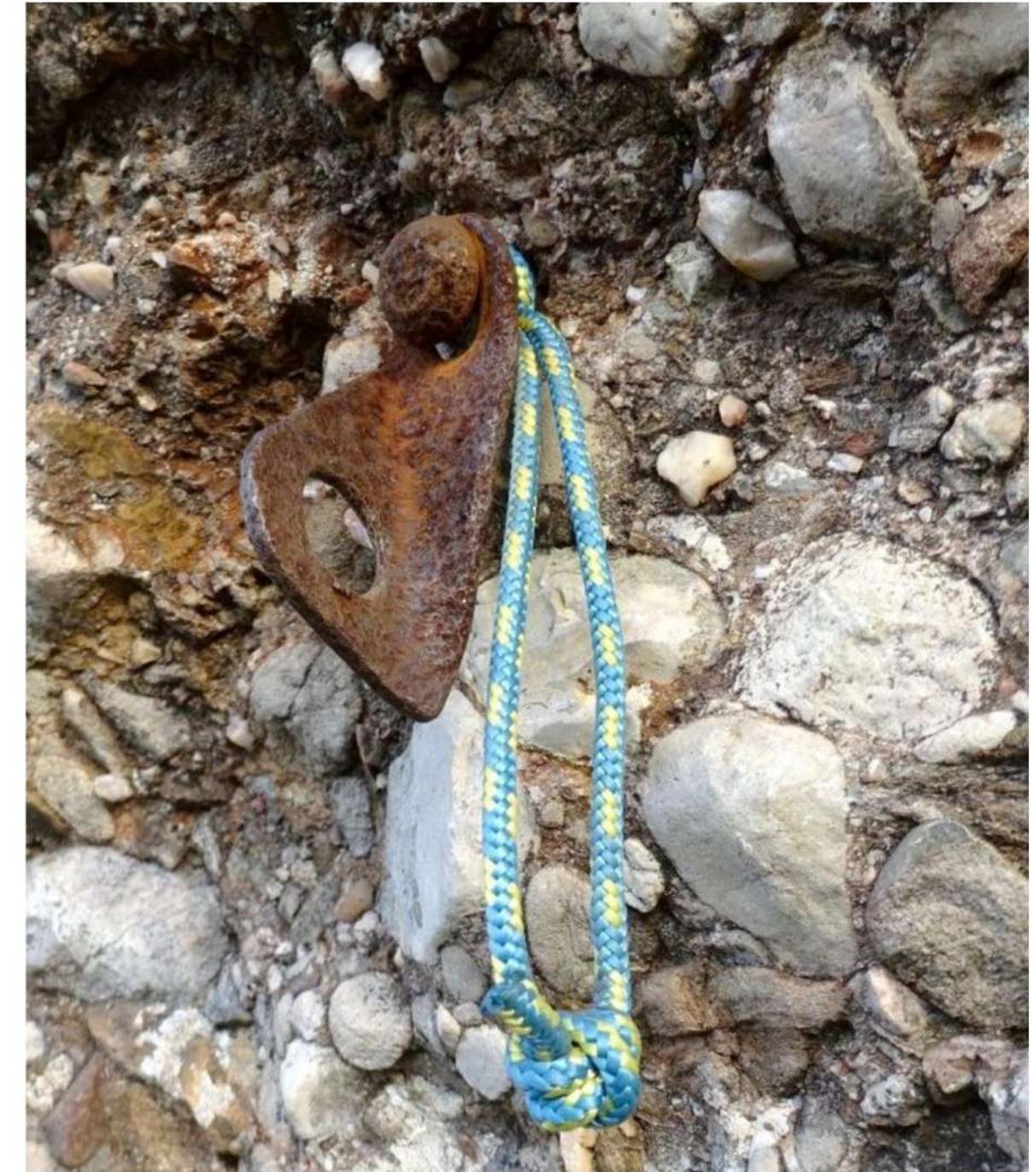
What are we interested in?

- Route beauty
- Rock quality
- Protection

Positive: Safe, good equipment



Negative: Not safe, bad equipment



STEP 6. SENTIMENT ANALYSIS

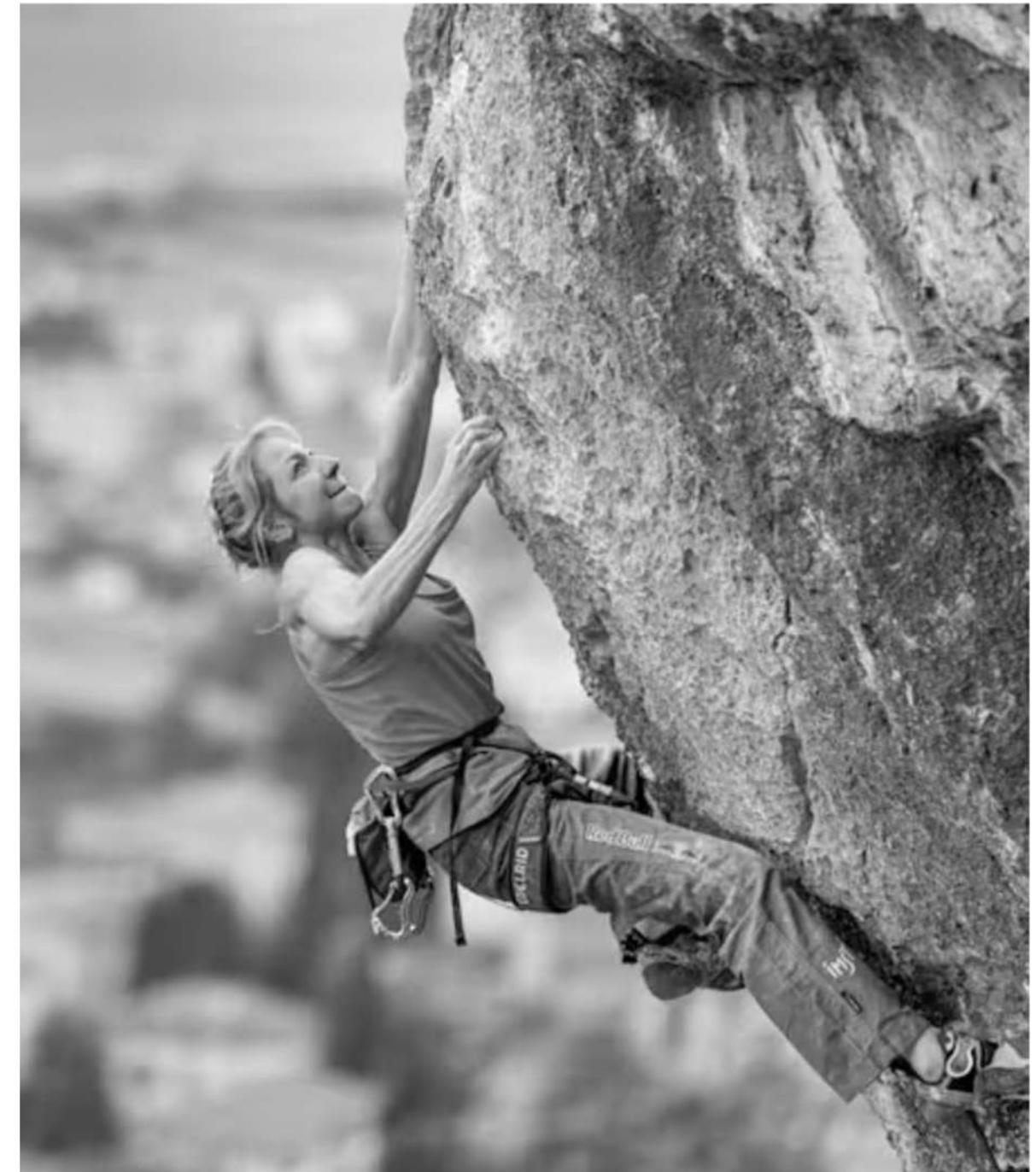
What are we interested in?

- Route beauty
- Rock quality
- Protection
- **Difficulty**

Positive: Easy route



Negative: Difficult route



STEP 6. SENTIMENT ANALYSIS

A. SpaCy library (catalan):

1. **Tokenization** → Break the text into individual words (tokens).
2. **Part-of-speech tagging** → Label words as nouns, verbs, adjectives, etc.
3. **Dependency parsing** → Understand relationships between words
4. **Lemmatization** → Normalize words to their base form

“The views were extremely beautiful”

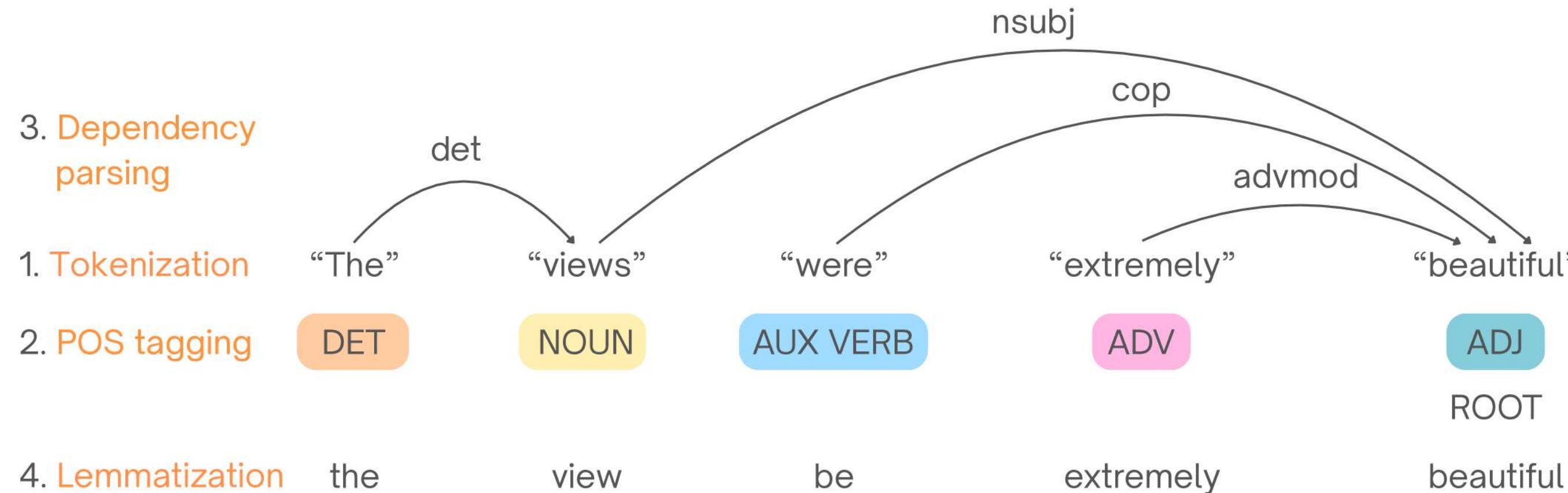
1. Tokenization	“The”	“views”	“were”	“extremely”	“beautiful”
2. POS tagging	DET	NOUN	AUX VERB	ADV	ADJ

STEP 6. SENTIMENT ANALYSIS

A. SpaCy library (catalan):

1. **Tokenization** → Break the text into individual words (tokens).
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3. **Dependency parsing** → Understand relationships between words
4. **Lemmatization** → Normalize words to their base form

“The views were extremely beautiful” “My new shoes looked totally cool”



STEP 6. SENTIMENT ANALYSIS

A. **SpaCy library (catalan):**

1. **Tokenization** → Break the text into individual words (tokens).
2. **Part-of-speech tagging** → Label words as nouns, verbs, adjectives, etc.
3. **Dependency parsing** → Understand relationships between words
4. **Lemmatization** → Normalize words to their base form

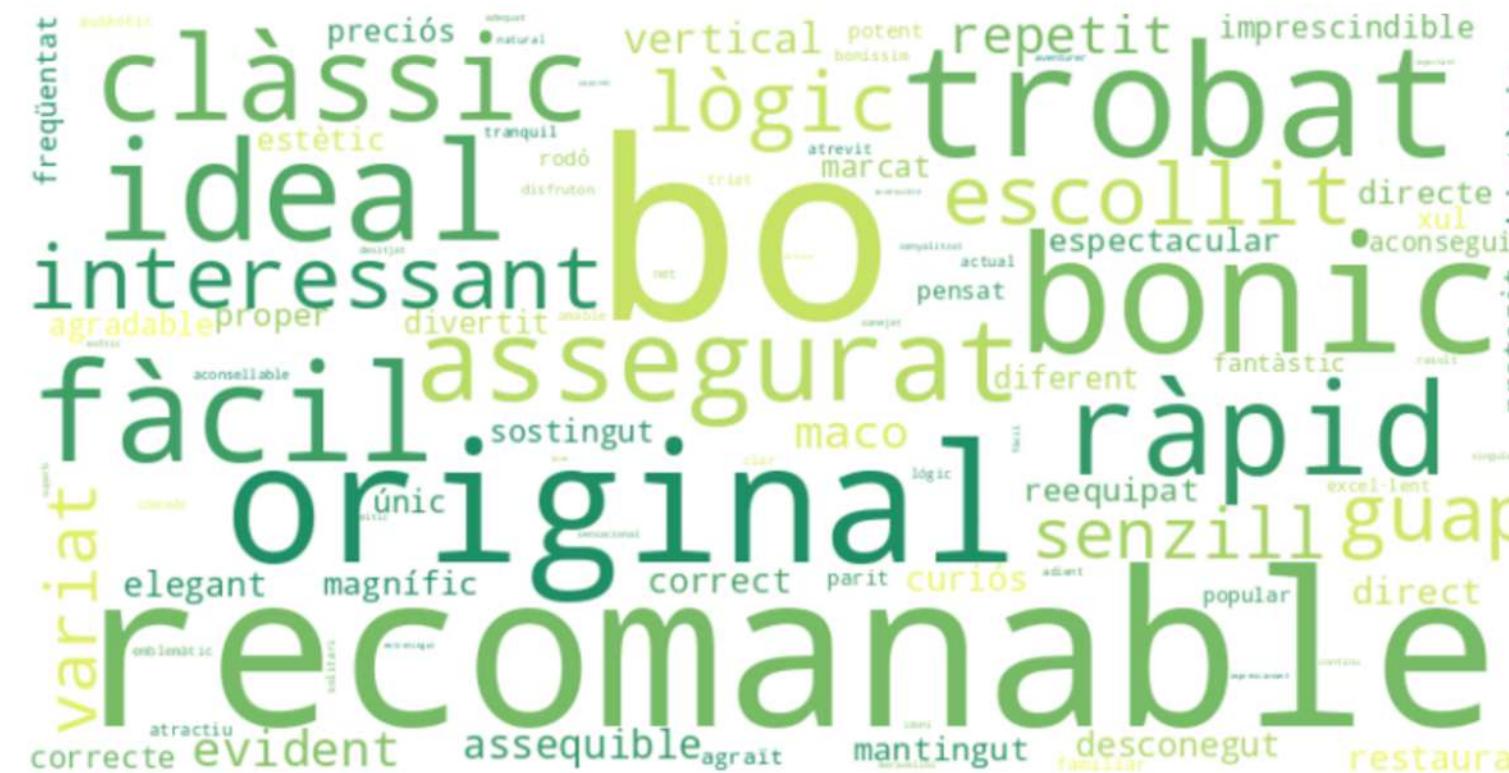
B. **Custom NLP Pipeline:**

1. **Trigger Identification** → List of keywords per sentiment.
2. **Modifier Detection** → Find adjectives (**lemmas**) or adverbs (**negation**) that are linked to those triggers
3. **Polarity Classification** → Manual lexicon (**dictionary**) to decide if a modifier is **positive, negative**, or neutral, depending on the **trigger**.

Route beauty: view, ambience...
Rock quality: rock, granite...
Protection: equipment, bolts...
Difficulty: grade, route...

STEP 6. SENTIMENT ANALYSIS

Adjectives for “Route recommendation”



Sentiment analysis for route “Epirimountains”

Route	route_recomendation	rock_quality	equipment_safety	difficulty	blog_name
Epirimountains	Neutre	Roca de qualitat (Roca: bona)	Neutre	Neutre	Bloc Empotrat
Epirimountains	Via bonica (Via: bona, recomanable)	Roca de mala qualitat (Roca: reliscos)	Ben equipada (Via: bona, equipada)	Difícil (Dificultat: mantinguda)	Joan Asin
Epirimountains	Via bonica (Via: recomanable)	Neutre	Equipament mixt (Equipament: equipada. Tram: difícil)	Difícil (Dificultat: mantinguda. Tram: difícil)	Joan Asin
Epirimountains	Via bonica (Via: lògica)	Roca de qualitat (Roca: bona. Placa: tancada)	Neutre	Neutre	Manel & Ita
Epirimountains	Neutre	Roca de qualitat (Tirada: típica. Roca: bona)	Ben equipada (Equipament: bon)	Accessible (Tram: fàcil)	Manel & Ita
Epirimountains	Via bonica (Via: recomanable)	Neutre	Neutre	Neutre	Roca Calenta

Highly recommended

Good quality rock

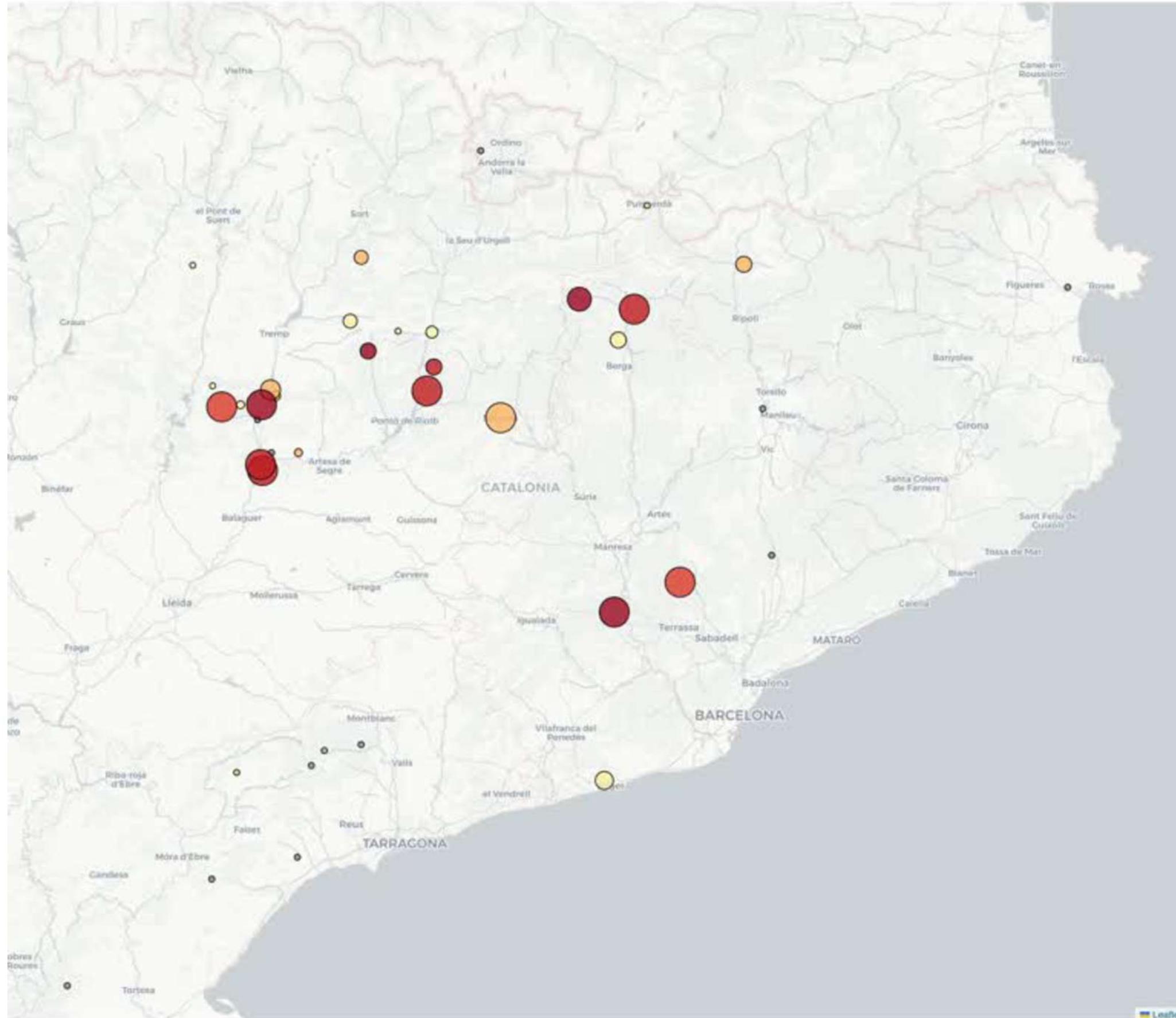
Safe, good equipment

Difficult route

OUTPUTS & VISUALIZATIONS



1. GEOGRAPHICAL ANALYSIS



Montserrat

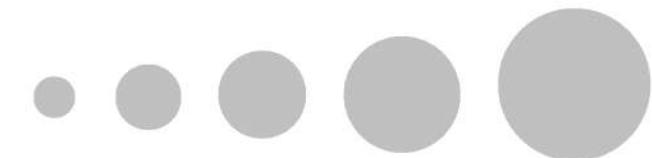
1204 unique routes

Max grade: 7c+

Avg. length: 64.1 m

Avg. first ascent year: 1982

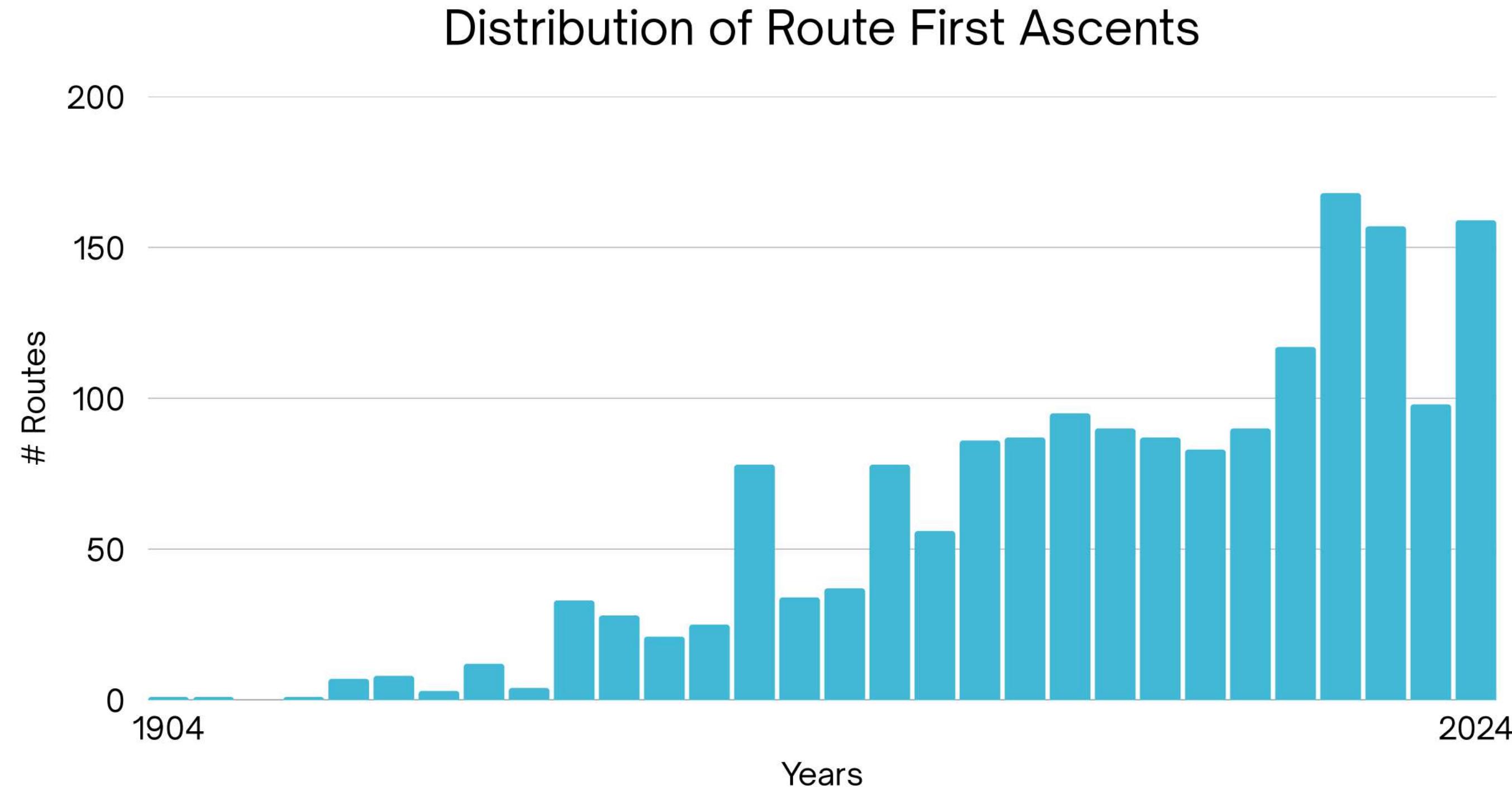
routes



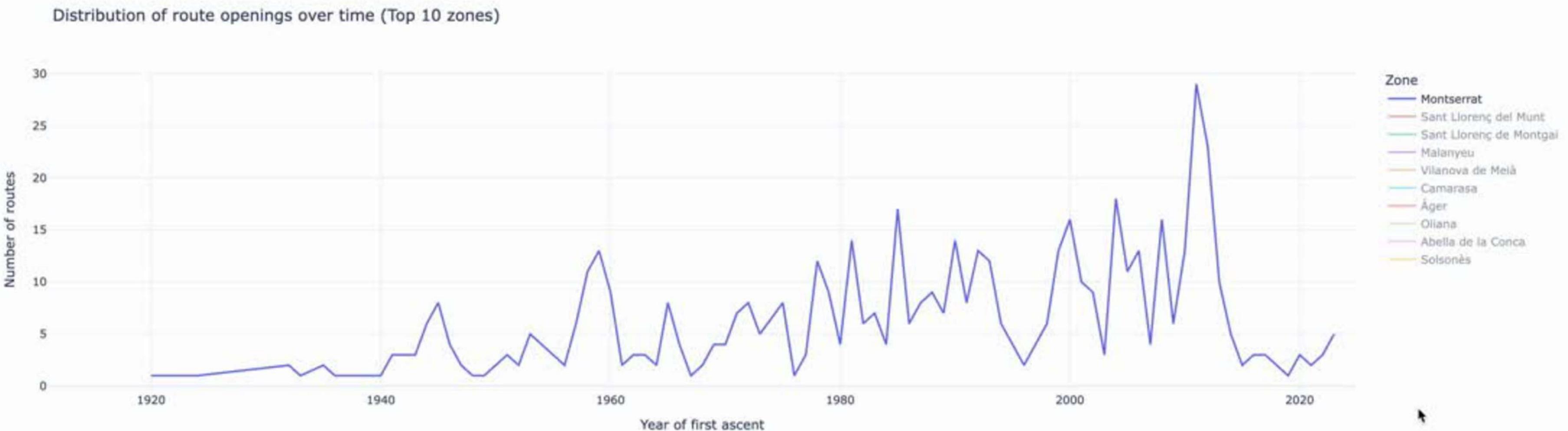
Max Grade



2. ROUTE FIRST ASCENT



2. ROUTE FIRST ASCENT



3. SENTIMENT ANALYSIS: UNSUPERVISED ROUTE GROUPING

Aspects (pos/neg/neutral)

- Route beauty
- Rock quality
- Protection
- Difficulty
- Commitment

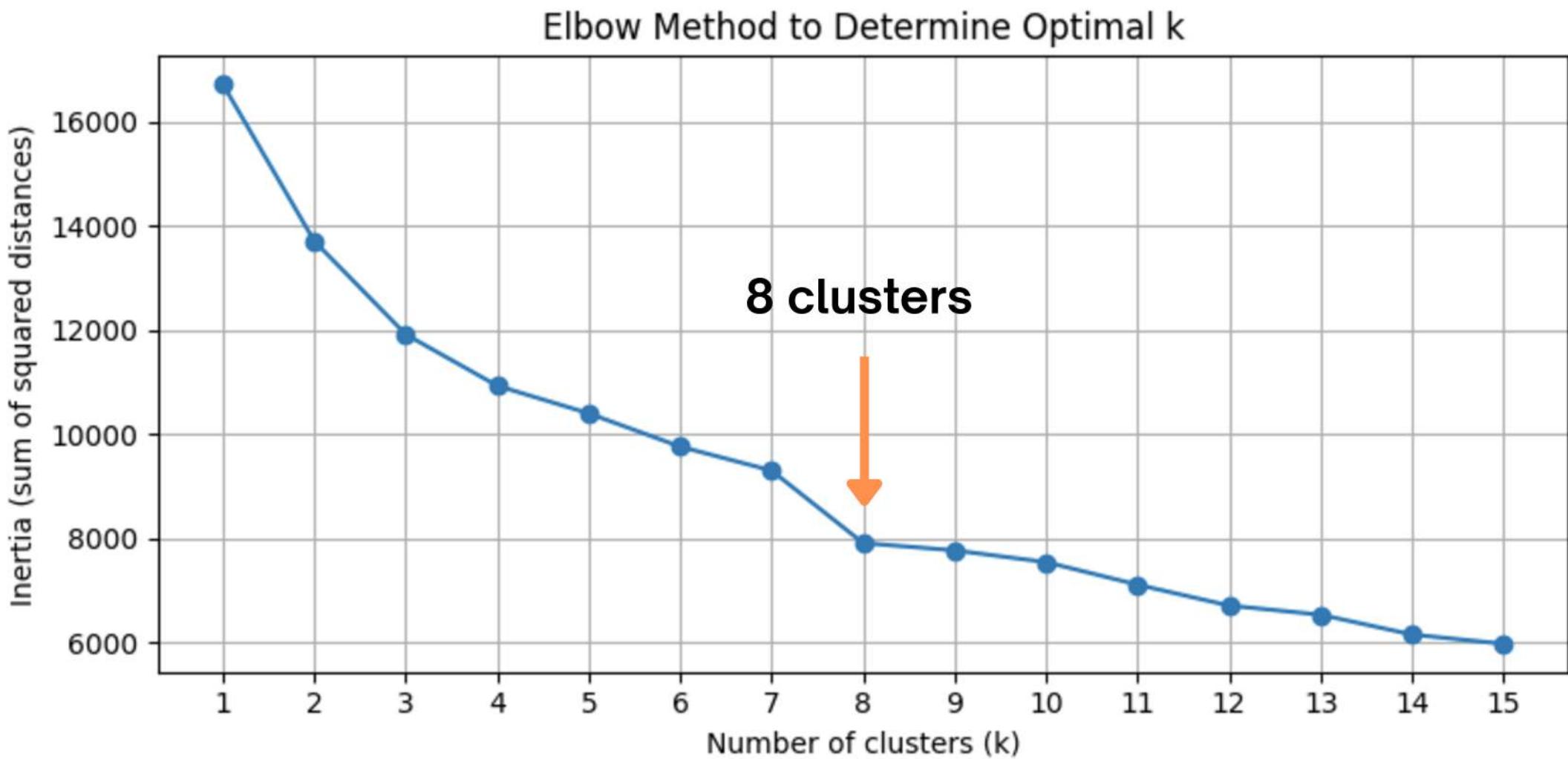
Unsupervised ML model to group routes

1. Ignore Neutral and NaNs
2. One-Hot-Encoding → binary vectors
3. Decide number of clusters

3. SENTIMENT ANALYSIS: UNSUPERVISED ROUTE GROUPING

Aspects (pos/neg/neutral)

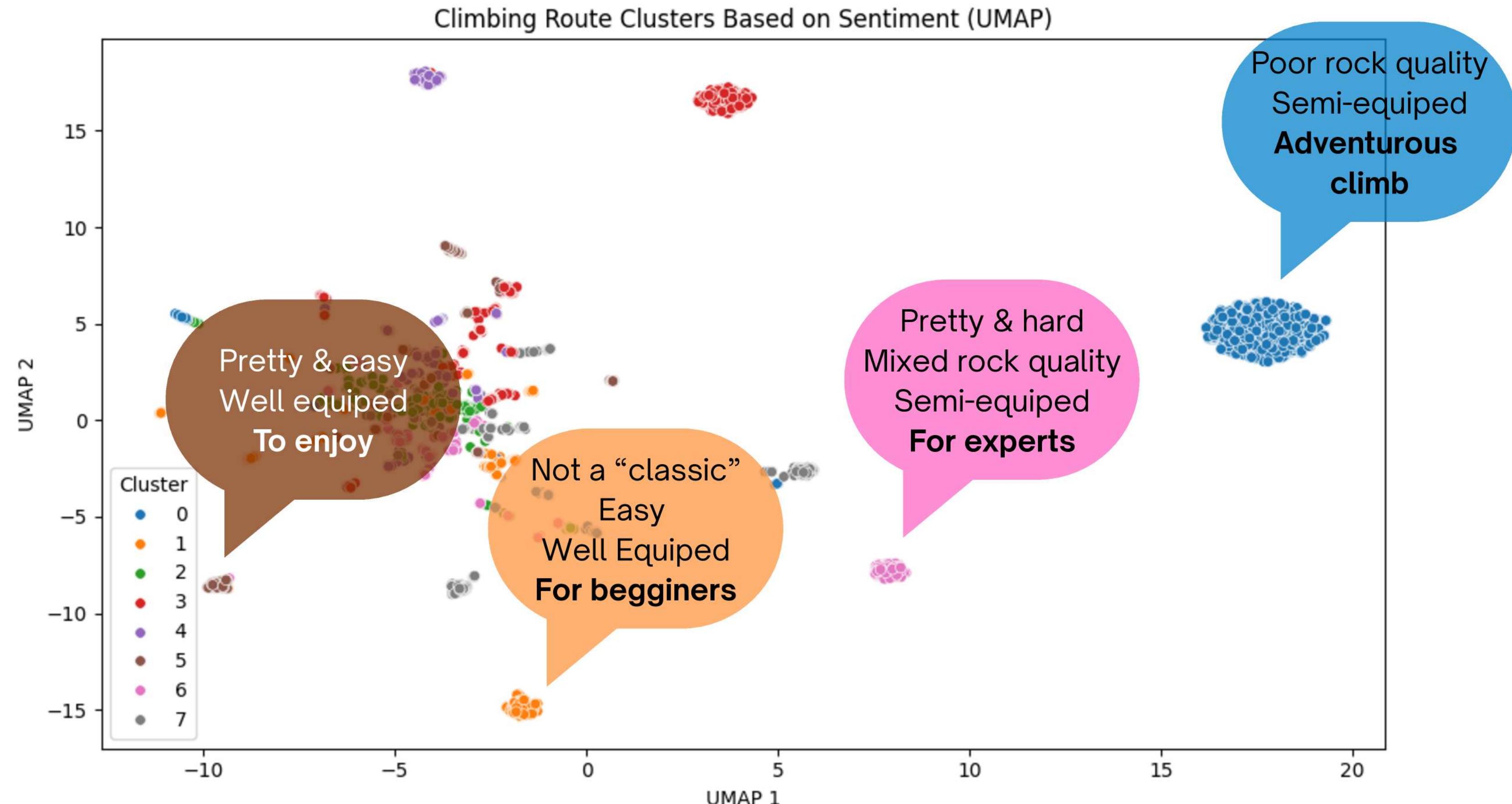
- Route beauty
- Rock quality
- Protection
- Difficulty
- Commitment



Unsupervised ML model to group routes

1. Ignore Neutral and NaNs
2. One-Hot-Encoding → binary vectors
3. Decide number of clusters
4. Unsupervised clustering using **Kmeans** algorithm (scikit-learn)

3. SENTIMENT ANALYSIS: UNSUPERVISED ROUTE GROUPING



PUTTING THE DATA TO WORK ■



ADVANCED SEARCH ENGINE

From messy blog entries to a personalized climbing route search engine.

The screenshot shows a Jupyter Notebook cell with the following content:

```
# Select relevant columns to show
columns_to_show = [
    "zone", "wall",
    "Obl_Grade",
    "Pitches",
    "Orientation", "Fixed_Equipment", "blog_name", "route_id"
]
result_df = filtered_routes[columns_to_show].copy()
result_df["route_id"] = filtered_routes["route_id"].values

return result_df.sort_values(by="Obl_Grade", ascending=True), f"{len(result_df)} routes found"

# Run the search
result = prompt_route_search_with_place()
display(result.head(10))

... Let's search for climbing routes near a location!
? Enter a location (e.g. 'Montserrat', 'Barcelona', 'Sort'): 
```

The code defines a function to filter climbing routes based on specific columns and sort them by grade. It also includes a search interface where a user can enter a location to find nearby routes.

```
[175] # Mostrar explorador interactiu
interactive_route_explorer(result, df)
```

Mostrar salida oculta

WHAT WE'VE BUILT ■



WHAT WE'VE BUILT



■ STRUCTURED DATA FROM CLIMBING BLOGS

We scraped **7 blogs** and extracted **objective info** like zone, wall, route name, grade, and gear — transforming messy texts into clean, consistent fields.

■ EXTRACTION, UNIFICATION, AND INTERPRETATION

We **standardized** names, **grouped** duplicate entries, filled missing values with rule-based logic, and used NLP to extract **subjective features** like style, rock quality, or exposure.

■ TOOLS FOR DISCOVERY AND INSIGHT

We built maps, visualizations, and a **search engine prototype** — paving the way for personalized recommendations and enhanced climbing planning.

WHAT'S NEXT? ■



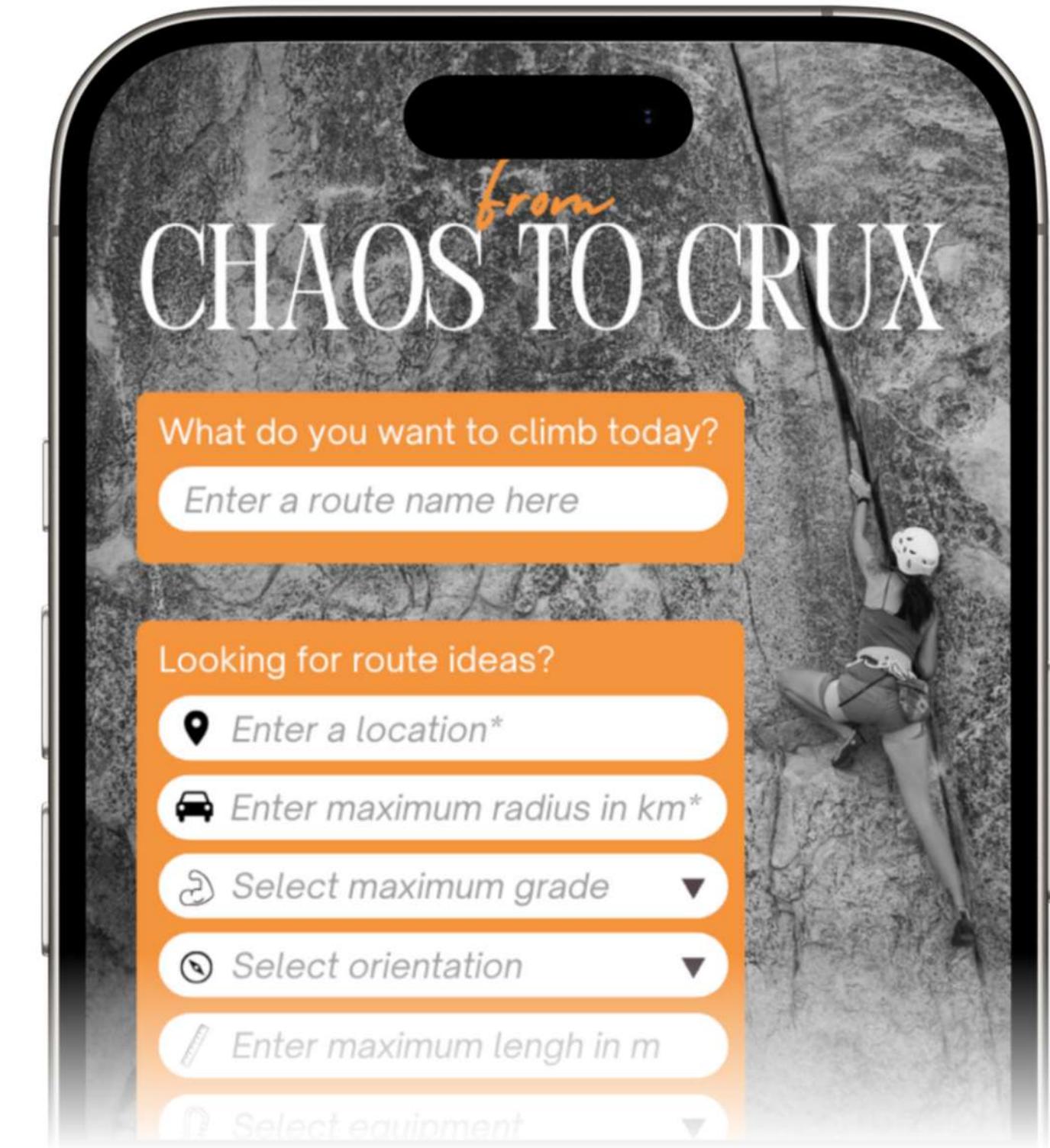
NEXT STEPS

■ EXPAND AND ENRICH THE DATASET

- Add **more climbing blogs**, including Spanish and English sources
- Automate dataset **updates** from new blog posts
- Extract information not only from text, but directly **from topo images**

■ BRING THE PROJECT TO LIFE IN A MOBILE APP

- Create user accounts to **log** and **rate** climbed routes
- Generate route **recommendations** based on user profiles
- Include an **advanced search engine** for route discovery





■ THANK YOU!

