



Decoding Sustainable Investment Strategies: Bridging Intentions and Actions


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Motivation

- Literature identifies 3 distinct sustainable investment goals (intentions)
 - **Financial**: to enhance the financial value of one's portfolio
 - **Moral**: to morally screen out unwanted categories of investments
 - **Impact**: to induce investee companies to generate positive impact
 - Why care to distinguish?
 - Pedersen, Fitzgibbons, & Pomorski (2021): **Financial** and **moral** investors want different portfolios
 - **Financial investors** hold a tangent portfolio using ESG information, while **moral investors** rationally hold a portfolio **off the tangent** on the ESG-efficient frontier.
 - Oehmke and Opp (2024): "**Being good**" and "**doing good**" are different and it matters
 - If a sustainable fund only cares about the level of greenness/goodness of its portfolio (**Moral investors**), it only invests in already clean/good firms, and has no impact
 - If a sustainable fund cares about counterfactual / avoided pollution and not levels (**Impact Investors**), it can invest in dirty firms and induces it to change, and can have impact
 - Existing "sustainable fund" labels neither specify nor distinguish between the 3 goals
 - We build a method that identifies sustainable funds with intent, and relate goals to fund actions
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Research Questions

1. Who are sustainable funds?
 - Our ML model distinguishes between “babblers” vs. “intent”
 - Further distinguishes among 3 well-defined goals
2. What goals do sustainable mutual funds pursue?
 - Enhancing **financial value**?
 - Adhering to **categorical morality**?
 - Generating **impact**?
3. How do the goals relate to actions by the funds?
 - Level of holdings
 - Voting
 - Changes during holdings

Preview of Results

1. 1,500 sustainable funds (16% fund count) manage \$1.4T (6% of total MF AUM) in 2023
 - 40% of funds (\$5T) mention keywords but no “intent”
 - 44% (\$18T) do not mention any keywords
2. Among funds labeled “sustainable” by Morningstar, the majority prioritize **Financial** and **Moral** goals over **Impact**
3. **Financial** funds hold higher ESG-rated stocks
4. **Moral** funds underweight sin industries
5. **Impact** funds are rare and activist
 - Hold lower-ESG rated stocks
 - Support E and S shareholder proposals
 - Firms’ E & S practice improve more during holding period

Related Literature

Vast and growing (apologies for not listing all)

1. Heterogeneity in preferences *among* sustainability investors
 - Financial vs. moral: Starks (2023), Pedersen et al. (2021), Goldstein et al. (2022)
 - Moral vs. impact: Oehmke and Opp (2024), Landier and Lovo (2020), Chowdhury et al. (2019)
 - Moral only (warm glow): Pastor et al. (2021), Berk and Binsbergen (2022), Lo and Zhang (2021)
2. Measuring heterogeneity in household sustainability preferences, willingness to pay
 - Financial vs. non-financial: Riedl and Smeets (2017), Bauer et al. (2021), Giglio et al. (2023)
 - Moral vs. impact: Bonnefon et al. (2023), Hart, Thesmar, Zingales (2024)
 - Impact: Barber, Morse and Yasuda (2021), Jeffers, Lyu and Posenau (2024)
3. Machine learning analysis of fund prospectuses / fund flows
 - Topics model: Abis (2022), Abis and Lines (2023), Bonelli et al. (2024), Aragon and Chen (2024)

Our paper

1. A novel model to identify 3 fund sustainability goals
 2. Supervised ML model to elicit fund managers' intentions, not topics
 3. Relate fund goals to actions
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3 Investor Types/Goals



Sam: “I object to private prisons. It bothers me if a mutual fund I hold in my retirement account invests in shares of a private prison operator.”

“Moral”



Inger: “I feel passionate about making access to clean water more equitable. I flex my financial muscle to back companies that promise to make this happen.”

“Impact”



Ellen: “I sense a huge shift in our entire economic system toward decarbonization and want to climate-proof my investment portfolio against stranded asset risk.”

“Financial”

Do you resonate with Sam, Inger, or Ellen?

3 ESG/Impact Investment Objectives

		Belief about social responsibility	
		Consequentialist Output-based	Kantian (deontological) Input-based
Investor Objectives	Include non-pecuniary preferences	Impact Investing (Inger)	Socially Responsible Investing (Sam)
	Financial risk/return only	ESG investing (Ellen)	

Only impact investing is designed to induce transformative change in generation of externalities by corporations

What are MSCI ESG Ratings for?

“MSCI ESG Ratings aim to measure a company’s management of financially relevant ESG risks and opportunities. We use a rules-based methodology to identify industry leaders and laggards according to their exposure to ESG risks and how well they manage those risks relative to peers.”

MSCI ratings do not measure how much “good” the company produces for the world. It is explicitly about the resilience of the company in managing its ESG risk.

<https://www.msci.com/our-solutions/esg-investing/esg-ratings>

Output vs. input-based social responsibility

Consequentialism	Deontology
The view that normative properties depend only on consequences. ... What is best or right is whatever makes the world best in the future (Stanford Encyclopedia of Philosophy)	The morality of an action should be based on whether that action itself is right or wrong under a series of rules and principles , rather than based on the consequences of the action.

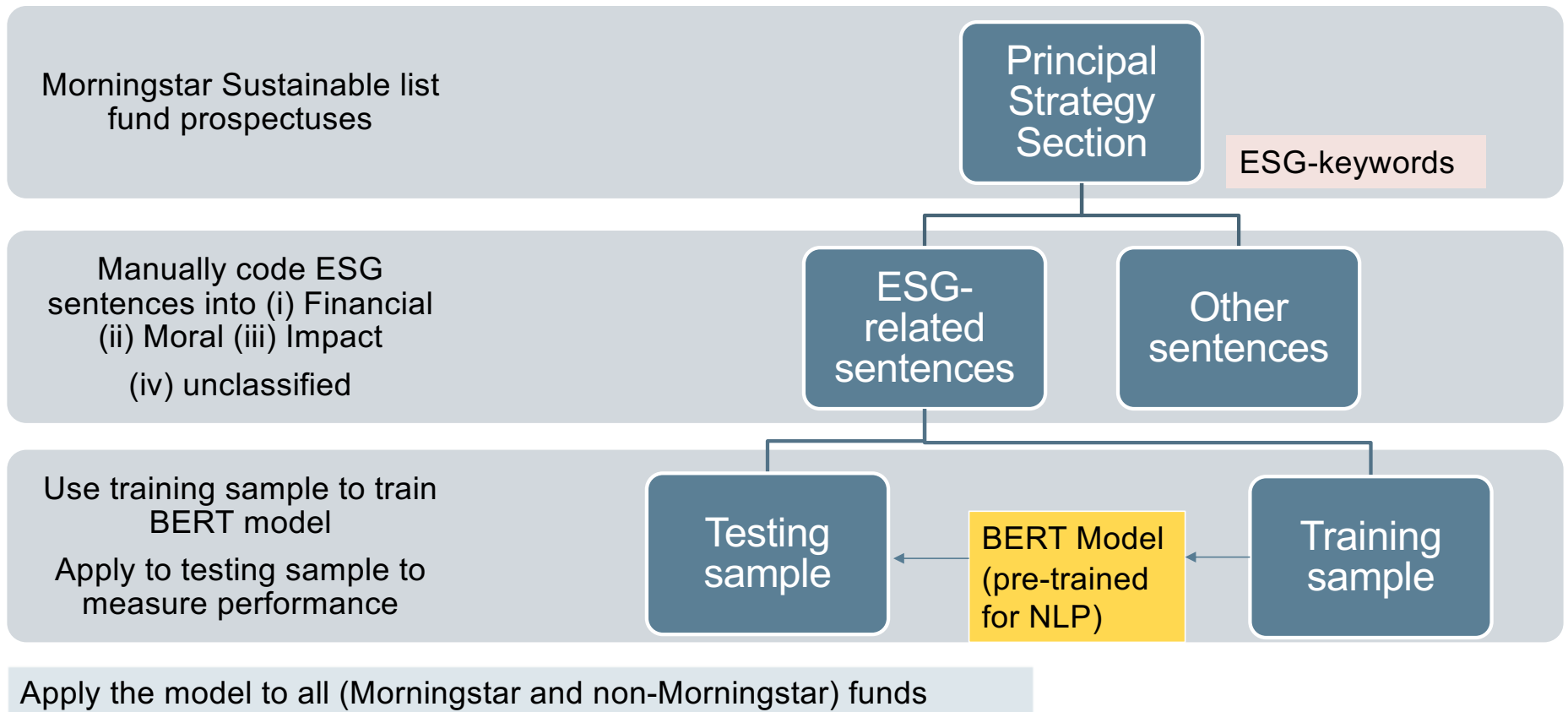
- **Consequentialism** is aligned with **impact investing**, where outcome measures (e.g., reduction in emissions) are used to gauge its impact and success
- **Deontological moral responsibility** is aligned with **categorical** negative screening (e.g., tobacco, alcohol, and now fossil-fuel energy) irrespective of consequences
- Deontological investors are indifferent as to whether their exclusion decisions induce the divested companies to change their ways.
- Investors who derive non-pecuniary utility can be either a consequentialist or deontologist (Bonnenfon, Landier, Sastry, Thesmar 2022)

Model

- Currently no U.S. regulation to distinguish the 3 goals
 - Hardy, Lambert, Yang and Yasuda (2024) SFDR in Europe
- Mutual funds discuss their fund goals in “Principal Investment Strategy” section of prospectuses
- Key: The 3 goals differ in investor intent, not topics
 - All 3 types of investors can be focused on the same topics (e.g., climate change, labor relations) yet value it very differently.
 - The model needs to extract the “intent”, not topics.

We use a BERT model to capture an intent at the sentence level.

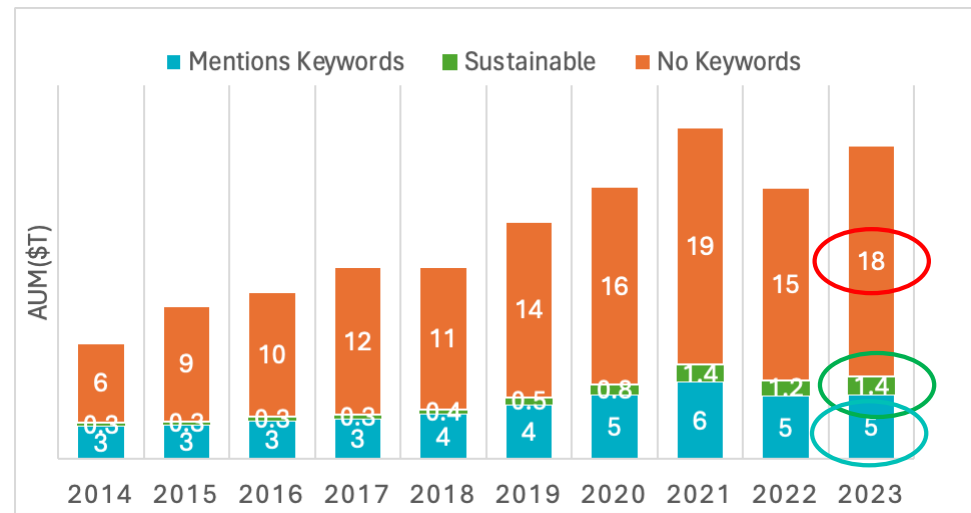
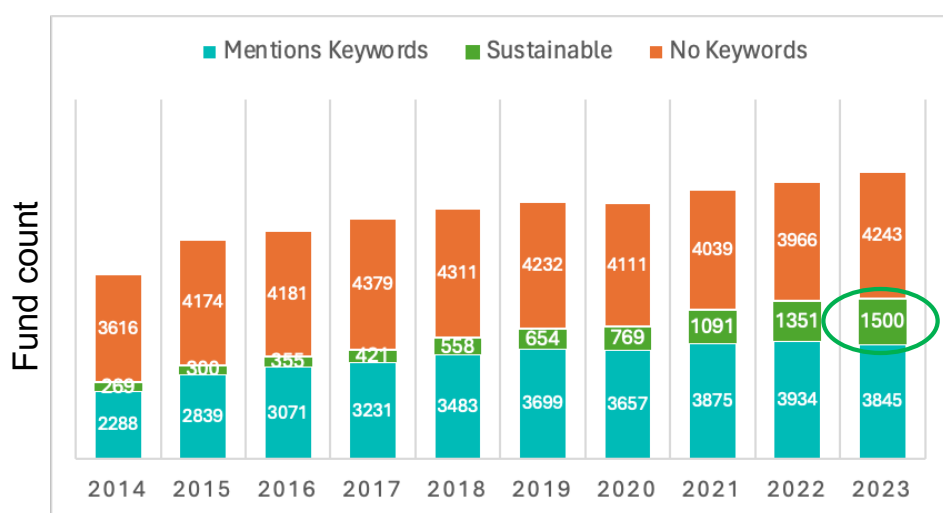
BERT Model Process



Sentence to Fund Aggregation

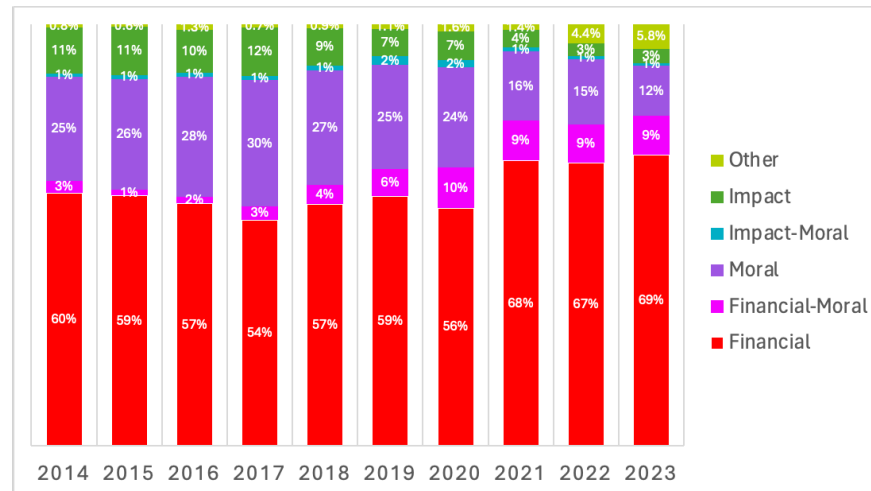
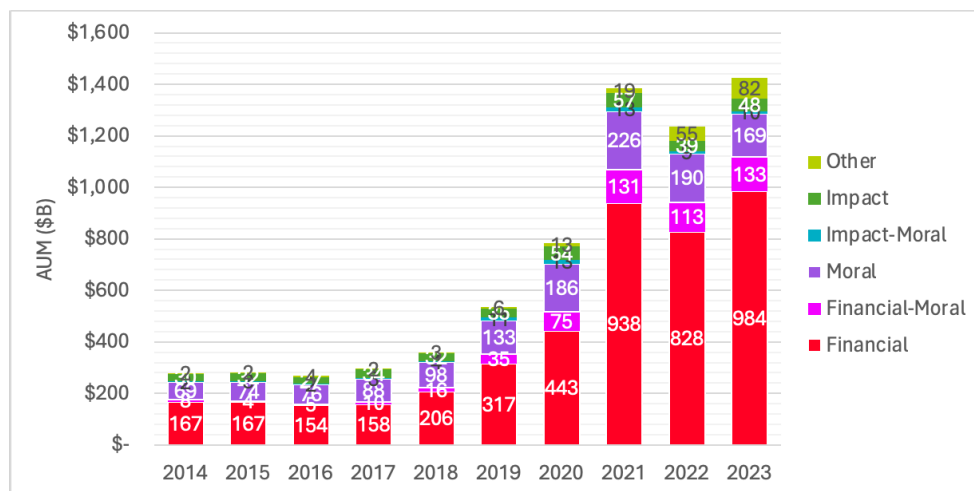
- Each ESG-related sentence is categorized as:
 1. Financial
 2. Moral
 3. Impact
 4. Unclassified
 - When aggregating up to the fund level, if multiple ESG-related sentences exist, we allow for co-existence of multiple sustainability goals in a fund ("hybrid" sustainable funds).
 1. At the fund level, we generate an intensity variable for relative importance of each of the 3 goals (0-100%).
 2. We also generate a simple indicator variable for presence of a goal at the fund level. (1 or 0)
- The two variables measure intensive and extensive margin of a goal.
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Sustainable vs. non-sustainable funds



- 1,500 sustainable funds (16% of total funds) managed \$1.4T (6% of total AUM) in 2023, compared to 269 funds (4%) managing \$0.3T (3%) in 2014.
- As % of fund count, “no-keywords” funds declined from 59% to 44% but as % of AUM held steady at 70-75%, managing \$18T out of \$25.5T in 2023.
- 40% of funds mention sustainability-related keywords and manage 21% (\$5T) of AUM but do not pursue any well-defined sustainability goals.
- Overall, sustainable funds grew faster as % of the fund universe than other funds but remain small.

Financial, Moral, and Impact Sustainable Funds



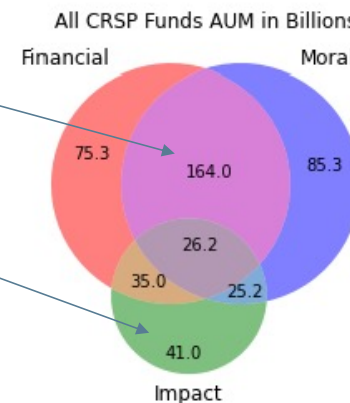
- Among the sustainable funds, **Financial funds** manage ~\$1T or 69% of total \$ in 2023.
- **Moral funds** managed \$69B (25%) in 2014 and \$169B (12%) in 2023.
- Hybrid Financial-moral funds grew from \$8 to \$133B (9%), replacing pure moral funds.
- **Impact funds** managed \$30B (11%) in 2014 and \$48B (3%) in 2023.
- Hybrid Impact-financial funds grew from \$1B to \$62B (5.8%), replacing pure impact funds.
- Combining pure and hybrid funds, the ratio of {Financial | Moral | Impact} sustainable funds in 2023 is about **70:20:10**, or **\$1T | \$300B | \$140B**, respectively.
- Capital allocated to generate positive impact on the environment and society is only 0.6% of total MF AUM.

What goals do sustainable funds pursue?

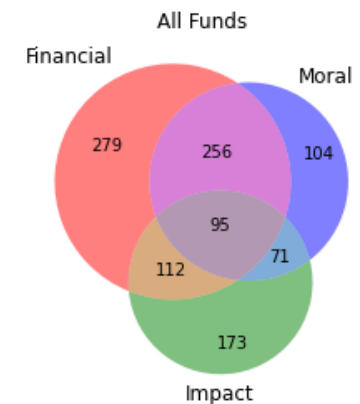
- Among the Morningstar sustainability list funds, majority prioritize financial value and categorial morality over generating impact.
 - Will expand to all funds
- Many pursue 2 or more sustainability goals (hybrid).
- When weighted by AUM, funds with financial and moral hybrid goals manage the largest \$B
- Impact funds are less prevalent and smaller

“Doing well and being good” not
“Doing good”

By Fund AUM



By Fund Count



Hypotheses

How do the goals relate to actions by the funds?

1. Level of holdings

- Financial funds hold higher-ESG rated stocks
- Moral funds underweight sin industries / indifferent to ESG ratings
- Impact funds hold lower-ESG rated stocks

2. Voting

- Impact funds vote in support of E&S shareholder proposals

3. Changes during holdings

- Financial funds sell E&S underperformers
 - Impact funds graduate improvers
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ESG-rating Results with Fund Type Intensity

	(1)	(2)	(3)
	ESG Score	E Score	S Score
Financial Intensity	0.284*** (3.072)	0.398*** (3.549)	0.169* (1.696)
Moral Intensity	0.134 (1.355)	0.075 (0.626)	0.194 (1.576)
Impact Intensity	-0.448*** (-4.464)	-0.541*** (-4.532)	-0.354*** (-3.045)
Observations	700	700	700

- Funds with higher Financial Intensity hold stocks with higher ESG ratings
- Funds with higher impact Intensity do the opposite – hold stocks with lower ESG ratings
- ESG ratings are insensitive to Moral Intensity

What industries do Moral Funds underweight?

	Pure Moral Funds		All Sustainable Funds Excluding Hybrid Funds				S&P500
	Portfolio Weight (%)	Std Dev	Portfolio Weight (%)	Std Dev	Difference	P-Value	Portfolio Weight (%)
Energy	1.356	2.269	2.225	5.723	-1.008**	(-2.172)	3.6
Aerospace	0.487	0.813	1.201	5.271	-0.828*	(-1.654)	2.5
Casino	0.040	0.117	0.065	0.487	-0.029	(-0.800)	0.2
Tobacco	0.022	0.113	0.117	0.843	-0.110**	(-2.455)	1.1
Utilities	3.015	9.652	6.709	14.470	-4.284**	(-2.551)	3.0

Impact and E and S Shareholder Proposal Voting

	(1)	(2)	(3)
	ES "For" Vote/Total "For" Vote	ES "Against" Vote/Total "Against" Vote	ES "Abstain" Vote/Total "Abstain" Vote
Financial Ratio	-0.264 (-1.482)	3.079 (1.523)	7.083*** (3.864)
Moral Ratio	-0.188 (-0.975)	3.692 (1.208)	-2.573 (-0.844)
Impact Ratio	0.368** (2.314)	-5.269*** (-3.289)	-5.698*** (-3.949)
Observations	209	207	109

- Funds with higher **Impact intensity** are associated with more engagement and higher likelihood of support for E&S shareholder proposals
 - Consistent with activist investment style.
- Financial intensity is the opposite
- Moral intensity is insensitive to voting

Additional Results

- Environmental sub-components of MSCI ratings:
 - Financial funds favor stocks highly rated on managing E-risk (e.g., climate change vulnerability, biodiversity & land use)
 - Impact funds favor stocks highly rated on pursuing E-opportunity (e.g., clean tech, green buildings, renewable energy)
 - Changes during holding period
 - Stocks sold by impact funds show more ESG score improvement during holding period / higher ESG scores compared to the remaining portfolio
 - Consistent with letting the improvers “graduate” or prioritizing laggards that require more improvement
 - Financial and moral funds tend to sell the laggards
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Conclusion

- We build a method that identifies sustainable funds with intent, and relate goals to fund actions
 1. 16% of MFs (6% of AUM) are sustainable in 2023
 2. Financial funds dominate, managing \$1T (70%) of \$1.4T
 - They hold higher ESG rated stocks and prioritize managing E-risk
 3. Moral funds underweight sin industries and are passive
 4. Impact funds vote to support E&S shareholder proposals, favor E-opportunities, only 0.6% of MF AUM
 - Our methodology enhances investor welfare by facilitating informed decision-making tailored to individual preferences
 - Adopting the methodology could improve companies' and policymakers' knowledge of sustainable investor heterogeneity
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