

Beyond Friendliness: The Distinctive Multidimensional Personality of Sphynx Cats Across Independent Cohorts

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Research Article

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Abstract

Background: Sphynx cats are widely described as unusually human-oriented, but the most directly relevant scientific report is a 2012 conference abstract focused on friendliness and calling for additional data. We tested whether the Sphynx shows an unusually distinctive multivariate personality profile while addressing post-hoc discovery, construct overlap, environmental composition, sampling uncertainty, and small-study inference.

Methods: This secondary analysis used published owner-questionnaire cohorts. The primary analysis used the French Cordonnier dataset and four core personality dimensions—Neuroticism, Extraversion, Dominance, and Agreeableness—expressed in residual-SD units. Among named breeds with complete profiles and $n \geq 20$, distinctiveness was summarized as $D4 = \sqrt{N^2 + E^2 + D^2 + A^2}$. Individual-level robustness analyses used the 2,528-cat structured French sample, adjusted sequentially for age/sex and for housing, urbanicity, outdoor time, surrounding natural habitat, household cat number, and daily owner-contact/observation time. We additionally used the actual within-cat residual correlation matrix, 5,000 individual-cat bootstrap resamples, and 15 leave-one-adjective-out factor refits.

Results: In the frozen primary French analysis, Sphynx cats ($n=57$) differed from the domestic/random-bred reference by -1.16 SD in Neuroticism, $+0.32$ in Extraversion, -0.33 in Dominance, and $+0.80$ in Agreeableness. $D4$ was 1.478, ranking first of 11 eligible breeds; Ragdoll was second at 0.962. The independent item-level reconstruction reproduced the basic profile closely ($D4=1.476$). Full environmental adjustment attenuated $D4$ by about 10% to 1.327 but Sphynx remained rank 1/11; the effects were -1.08 , $+0.30$, -0.24 , and $+0.67$ SD across the four domains. An individual-level covariance-adjusted distance likewise ranked Sphynx first (1.233 vs 0.872 for Ragdoll). In 5,000 individual-cat bootstrap resamples of the fully adjusted model, Sphynx ranked first in 92.94%; its $D4$ bootstrap median was 1.359 (95% interval 1.125–1.579). Sphynx also remained rank 1 in all 15 leave-one-adjective-out factor refits. Secondary cross-cohort analyses again placed Sphynx at the extreme end of the distribution, although the UK Sphynx/Burmese ordering was effectively a tie. Low Neuroticism remained the most reproducible single component across independent sources.

Conclusions: The available data support an unusually extreme Sphynx personality profile that is only partly attenuated by measured environmental differences and is not driven by a single questionnaire adjective. Low Neuroticism/negative emotionality is the most secure replicated component. Observational data cannot identify genetic, developmental, owner-selection, or thermoregulatory causes.

1. Introduction

Domestic cats show stable individual differences in behavior and personality, and several large questionnaire studies have recovered reproducible dimensions. The Feline Five framework identified Neuroticism, Extraversion, Dominance, Impulsiveness and Agreeableness in 2,802 pet cats [1]. Other validated instruments identify related but more behavior-specific domains, including fearfulness, activity/playfulness, aggression toward humans, and sociability toward humans and cats [2].

Breed-associated behavioral variation is also well documented. Takeuchi and Mori reported breed differences across most assessed behaviors and used multivariate clustering to describe breed profiles [3]. In 5,726 cats, Salonen and colleagues found breed differences across ten behavioral traits and moderate heritability for several traits in pedigree subsets [4]. A Fe-BARQ study of 574 registered cats likewise found breed-associated behavioral differences, although its 12 breeds did not include the Sphynx [5]. These findings establish that breed-level behavioral phenotypes can be quantified, but they do not imply purely genetic causes: rearing, breeder practices, owner selection, housing, social exposure and response styles may all contribute.

The most directly relevant Sphynx-specific scientific report we identified was a 2012 conference abstract by Asselineau, Abitbol and Deputte [6]. It compared Sphynx, Maine Coon, Persian and outbred cats, reported a clear pedigree-versus-outbred difference in friendliness and described Sphynx as a comparatively homogeneous group. Importantly, the authors proposed early and sustained human contact in breeding colonies as a possible explanation and concluded that more data were required to determine whether the Sphynx has a particular status in cat-human relationships.

Subsequent datasets have not fully answered that question. In the validated 4,316-cat Helsinki questionnaire, Sphynx and Devon Rex were combined, preventing a pure-breed Sphynx inference [2]. The open French dataset contains exact Sphynx observations and a multi-item personality battery, but the original paper addressed personality in relation to predation rather than breed-specific multivariate distinctiveness [7]. The 8,224-cat Fe-BARQ archive released with a later fetching study includes breed and social/activity variables, but the published analysis did not test a whole-profile Sphynx phenotype [8].

During construction of a broader cross-dataset Feline Personality Atlas, the Sphynx emerged as unusually extreme. Because that observation preceded this focused protocol, the present study is a post-hoc robustness analysis rather than a prospective confirmation. Methodological review identified an important measurement issue: the French Human Affiliation composite uses affectionate, friendly-to-people and reverse-solitary item content—the same three adjectives selected in the source questionnaire to represent Agreeableness [7]. The revised primary analysis therefore excludes Human Affiliation from the multivariate distance and treats it as a separate secondary social outcome. Our main question is whether Sphynx remains unusually distinctive under this stricter design.

2. Materials and methods

2.1 Study design and transparency

This study is a secondary, exploratory analysis of previously published owner-questionnaire data and harmonized breed effects. No new cats or owners were recruited. The Sphynx hypothesis was generated from the broader Atlas before the focused protocol was written. The present manuscript therefore does not describe the analyses as preregistered or confirmatory.

During methodological review, the analytic hierarchy was tightened before final manuscript drafting: the primary multivariate result is a same-source four-factor analysis in France; cross-cohort harmonized rankings are secondary; Human Affiliation is not included in the primary distance; rank uncertainty and small-k meta-analytic sensitivity are reported explicitly. The $n \geq 20$ primary comparator threshold was inherited from the frozen Atlas evidence rules rather than selected after observing the Sphynx ranking. Before this revision was finalized, every headline numeric claim was regenerated and checked against the frozen Feline_Atlas_Supplement_v0_7 source-family effects and the Feline_Total_Atlas_v0_8_COMPLETE matrix. Earlier exploratory v0.6 Finka-derived Human Affiliation and Agreeableness proxy composites were excluded because they are not part of the current reproducibility freeze. Literature positioning used targeted searches rather than a formal systematic-review protocol.

2.2 Source datasets

Source	Approx. N	Sphynx status	Variables retained here	Role
Finka et al. 2019 [9]	~3,331	Exact n=20	Raw-reproducible Neuroticism- and Extraversion-related mappings	Independent UK two-domain replication; undocumented social proxy composites excluded
Mikkola et al. 2021 [2]	4,316	Sphynx + Devon Rex grouped	Fearfulness, activity/playfulness, human sociability	Context only; grouped estimate not assigned to Sphynx
Cordonnier et al. 2023 [7]	2,508 published; 2,528 structured reconstruction	Exact n=57	Four reconstructed core factors; exploratory human-affiliation item composite	Primary same-source analysis
Delgado et al. 2024 / Fe-BARQ [8]	8,224 rows	Exact n=18	Activity/playfulness; Sociability with People	Small independent supportive analysis

Table 1. Source datasets used in the focused Sphynx analysis. The French structured reconstruction contains 2,528 machine-identifiable cases; the original publication reported 2,508 after additional free-text/comment-defined exclusions that cannot be recreated from structured flags.

2.3 Standardization and primary French four-factor profile

Within each source, breed effects were expressed as adjusted differences from a domestic/random-bred reference divided by the model residual standard deviation. Positive values indicate more of the named construct and negative values less. Exact-breed estimates were used for focal Sphynx inference.

The primary analysis uses the French source because it provides one questionnaire framework, one reference population and four core personality dimensions for the same breed set: Neuroticism, Extraversion, Dominance and Agreeableness. In the original Cordonnier questionnaire, the three adjectives chosen to represent Agreeableness were affectionate, friendly to people, and solitary (negative loading) [7]. The exploratory French Human Affiliation composite uses that same three-item content (affectionate + friendly to people – solitary). It is therefore excluded from the multivariate distance to avoid counting essentially the same social item set twice.

Eligible comparator breeds required complete exact-breed estimates for all four core dimensions and at least 20 cats. The $n \geq 20$ threshold was inherited unchanged from the frozen evidence rules used in the broader Atlas audit. The primary distance was:

$$D4 = \sqrt{(\text{Neuroticism}^2 + \text{Extraversion}^2 + \text{Dominance}^2 + \text{Agreeableness}^2)}$$

D4 is a transparent equal-weight geometric distance from the domestic/random-bred origin. It is a descriptive statistic, not a validated latent index. Breed ranks are therefore descriptive and do not imply a random sample of all possible breeds.

2.4 Individual-level environmental and measurement robustness

D4 was first recalculated after omitting each core factor in turn. We then returned to the 3,143-row public Cordonnier workbook and reproduced the transparent structured personality sample by excluding cats younger than 1 year, owners reporting no observation/contact time, and records with incomplete personality adjectives, yielding 2,528 cats including 57 Sphynx. A four-factor maximum-likelihood model with oblimin rotation was refitted to the 15 questionnaire adjectives; regression factor scores were oriented to Neuroticism, Extraversion, Dominance, and Agreeableness. This independent reconstruction reproduced the frozen basic Sphynx profile closely (D4 1.476 versus 1.478 in the audited source-family freeze). Nested breed models then adjusted (i) for age and sex; (ii) additionally for housing type, urban/peri-urban/rural zone, outdoor-time category, and surrounding natural-area abundance; and (iii) additionally for household cat number and daily owner observation/game/petting/care time. All covariates were represented categorically using the released survey coding.

For covariance-aware sensitivity, the residual correlation matrix of the four individual-level factor scores was estimated from each French regression model and used to calculate $\sqrt{x'R^{-1}x}$ for each breed's standardized effect vector; this uses actual within-cat trait covariance rather than covariance among breed means. Sampling stability of the fully adjusted ranking was assessed with 5,000 nonparametric individual-cat bootstrap resamples (seed 20261007), refitting the breed/environment regression in each resample while holding the baseline factor-score definition fixed. Measurement robustness was assessed separately by refitting the four-factor maximum-likelihood oblimin model 15 times, each time

deleting one personality adjective, aligning the refitted factors to the baseline four-domain solution by maximum absolute score correlation, and recomputing fully adjusted breed distances.

2.5 Secondary harmonized and source-specific analyses

The broader harmonized analysis used Neuroticism, Extraversion, Dominance and Agreeableness in common residual-SD units. It was restricted to 17 breeds with direct exact-breed evidence for all four dimensions; grouped-breed and model-completed cells were excluded. The same D4 statistic and leave-one-domain-out logic were applied. A stricter two-domain analysis used only Neuroticism and Extraversion among breeds for which both dimensions had at least moderate multi-source evidence.

Independent source-specific checks included a UK Neuroticism/Extraversion distance among breeds with $n \geq 20$ and a Penn/Fe-BARQ activity-plus-human-sociability distance. The Penn Sphynx sample ($n=18$) was below the frozen $n \geq 30$ replication threshold and is therefore supportive only. The UK rank was also subjected to the same marginal-SE Monte Carlo stress test because its Sphynx/Burmese point difference was very small.

2.6 Trait-level synthesis

For Sphynx traits represented by two independent exact-breed source families, conventional DerSimonian-Laird random-effects estimates were calculated as descriptive summaries. Because $k=2$ provides very weak information about between-study variance, modified Hartung-Knapp intervals using the conservative variance floor were treated as the more important small- k sensitivity. The French-plus-UK Neuroticism synthesis and French-plus-Penn Human Affiliation synthesis were evaluated separately. Human Affiliation was not allowed to upgrade the primary multivariate claim.

2.7 Exploratory cognition-related owner ratings

Because the French questionnaire contains a single owner-rated adjective labelled Intelligent, we conducted a prespecified-after-discovery exploratory cognition-related analysis without treating this item as a validated cognitive test. The 1–5 Intelligent rating was analysed in the same 2,528-cat structured French sample using (i) age- and sex-adjusted breed models and (ii) the full environmental model including housing type, urban/peri-urban/rural zone, outdoor time, surrounding natural-area abundance, household cat number, and daily owner-contact/observation time. Sphynx coefficients were divided by the ordinary model residual SD and HC3 robust standard errors were used for inference. Rank stability was examined with 5,000 individual-cat bootstrap resamples. An ordinal-logit sensitivity analysis compared Sphynx with the domestic/random-bred reference under full environmental adjustment.

To evaluate whether a high Intelligent rating merely reflected the broader Sphynx personality profile or owner halo, the four-factor French model was refitted after removing the Intelligent adjective, the

resulting factors were aligned to the baseline Neuroticism, Extraversion, Dominance, and Agreeableness solution, and all four were added to the full environmental regression. As a separate-source check, we analysed the Penn/Fe-BARQ Trainability and PlaysFetch outcomes in the same audited nine-country breed model that reproduces the previously frozen Activity and Sociability-with-People estimates. That model adjusts for country, age, age squared, sex, neuter status, health problems, household cat number, dog exposure, and lifestyle. The exact Penn Sphynx sample was n=18 and therefore remained below the frozen n≥30 grade-qualification threshold. Finally, breed-level correspondence between French Intelligent and Penn Trainability effects was examined descriptively with Spearman correlation among directly matched breeds. All cognition-related analyses are exploratory owner-report analyses and are not interpreted as measures of general intelligence.

2.8 Relationship to the broader Feline Personality Atlas

The data-processing infrastructure overlaps with an unpublished broader Feline Personality Atlas project from which the focal Sphynx hypothesis emerged. The present manuscript asks a narrower question and adds same-source multivariate ranking, rank-uncertainty stress tests, small-k trait synthesis, and Sphynx-specific interpretation. If both projects proceed to submission, the relationship and shared source data will be disclosed to editors and duplicate Sphynx-specific analyses will be removed from the Atlas.

3. Results

3.1 Primary French four-factor phenotype

In the French source, Sphynx cats (n=57) showed a large negative Neuroticism-related effect (−1.156 SD), moderately higher Extraversion (+0.316), lower Dominance (−0.331), and high Agreeableness (+0.799). The approximate marginal 95% intervals were −1.34 to −0.97, +0.08 to +0.55, −0.60 to −0.06, and +0.57 to +1.03 SD, respectively.

Domain	Effect (SD)	SE	Approx. 95% CI	Primary interpretation
Neuroticism	−1.156	0.095	−1.34 to −0.97	Very low negative emotionality/fearfulness-related score
Extraversion	+0.316	0.119	+0.08 to +0.55	Moderately higher activity/engagement
Dominance	−0.331	0.137	−0.60 to −0.06	Lower assertiveness/social-control score
Agreeableness	+0.799	0.118	+0.57 to +1.03	Large friendliness/tolerance-related effect
Human Affiliation*	+1.059	0.112	+0.84 to +1.28	Secondary social composite; excluded from D4

Table 2. French Sphynx estimates. *Human Affiliation is shown descriptively but excluded from the primary D4 because its French composite uses the same three questionnaire adjectives selected to represent Agreeableness [7].

3.2 Primary breed ranking and robustness

Among the 11 French breeds with complete four-factor profiles and $n \geq 20$, Sphynx had the largest D4 (1.478). Ragdoll ranked second at 0.962, an absolute gap of 0.516 and a ratio of 1.54. Sphynx remained first when each of the four core factors was removed separately. When Neuroticism was omitted—the most demanding leave-one-factor-out test—the remaining Sphynx distance was 0.921 versus 0.892 for Ragdoll.

Analysis	Sphynx	Rank	Nearest comparator	Comparator
Primary France D4	1.478	1/11	Ragdoll	0.962
Omit Neuroticism	0.921	1/11	Ragdoll	0.892
Omit Extraversion	1.444	1/11	Ragdoll	0.850
Omit Dominance	1.440	1/11	Ragdoll	0.750
Omit Agreeableness	1.243	1/11	Ragdoll	0.833
Within-cat covariance-adjusted, basic	1.339	1/11	Ragdoll	0.969
Full environmental adjustment D4	1.327	1/11	Ragdoll	0.874
Full environment + within-cat covariance	1.233	1/11	Ragdoll	0.872

Table 3. Primary same-source robustness analyses.

3.3 Environmental adjustment, individual-level uncertainty, and item robustness

The raw French data revealed substantial lifestyle differences between Sphynx and the domestic/random-bred reference: 75.4% of Sphynx were reported to spend no time outdoors versus 28.3% of domestic/reference cats, and 43.9% versus 24.4% were in the longest daily owner observation/game/petting/care category. Nevertheless, adjustment for these and the other measured environmental variables only partly attenuated the multivariate profile. In the independent item-level reconstruction, Sphynx D4 decreased from 1.476 in the age/sex model to 1.389 after physical-environment adjustment and to 1.327 after the full environmental model, a reduction of approximately 10.1%. Sphynx remained rank 1 of 11 named breeds in every model; Ragdoll remained the nearest comparator in the full model at D4=0.874.

The fully adjusted Sphynx effects were -1.077 SD for Neuroticism, $+0.305$ for Extraversion, -0.245 for Dominance, and $+0.670$ for Agreeableness. Using the actual within-cat residual correlation matrix reduced the fully adjusted distance to 1.233, but Sphynx again ranked first, ahead of Ragdoll at 0.872. Across 5,000 individual-cat bootstrap resamples, Sphynx ranked first in 92.94%; its D4 bootstrap median was 1.359 (2.5th–97.5th percentile 1.125–1.579). The Sphynx-minus-best-competitor distance gap had a median of 0.365 but a 95% interval of -0.164 to 0.654 , so the data support a highly stable but not deterministic rank-1 claim. Bootstrap intervals for the fully adjusted Sphynx effects were -1.275 to -0.904 for Neuroticism, $+0.049$ to $+0.537$ for Extraversion, -0.509 to $+0.024$ for Dominance, and $+0.432$ to $+0.906$ for Agreeableness. Finally, Sphynx remained rank 1 in all 15 leave-one-adjective-out factor refits (D4 range 1.102–1.428), arguing against dependence on any single questionnaire adjective.

3.4 Secondary harmonized and independent-source checks

The stricter primary result did not depend on abandoning the broader cross-cohort signal. In the harmonized exact-breed set, using the same four core domains and excluding Human Affiliation, Sphynx again ranked first of 17 breeds (D4=1.435), followed by Cornish Rex (0.847). It remained first after each core domain was omitted. In the evidence-restricted Neuroticism/Extraversion analysis, Sphynx again ranked first of 10 breeds (distance approximately 1.145).

The independent UK analysis was more cautious. Sphynx had the largest Neuroticism/Extraversion point distance (1.598) but Burmese was essentially identical (1.590). The marginal-SE simulation assigned rank 1 to Sphynx in 51.6% of draws and Burmese in 48.4%, demonstrating that this source supports an extreme Sphynx/Burmese cluster rather than unique Sphynx separation. In Penn/Fe-BARQ, the Sphynx activity-plus-human-sociability distance was approximately 0.512 and ranked third of 12 breeds; the exact Sphynx sample contained only 18 cats.

Analysis	Sphynx result	Rank	Comparator/context	Interpretation
Harmonized core D4, exact profiles	1.435	1/17	Cornish Rex 0.847	Secondary cross-cohort support; no Human Affiliation in distance
Evidence-restricted N+E	1.145	1/10	Next breed below Sphynx	Social-domain weakness cannot explain the full result
UK N+E point estimate	1.598	1/8	Burmese 1.590	Point rank is not meaningfully separated
UK Monte Carlo rank 1	51.6%	—	Burmese 48.4%	Extreme cluster, not unique replication
Penn activity + human sociability	0.512	3/12	Sphynx n=18	Supportive only

Table 4. Secondary cross-cohort and independent-source checks.

3.5 Trait-level replication and small-k sensitivity

Low Neuroticism was the most reproducible individual component. The French and UK Sphynx estimates were -1.156 SD (SE 0.095) and -1.046 SD (SE 0.174). The conventional random-effects estimate was -1.131 SD (95% CI -1.29 to -0.97 ; $I^2=0\%$). With only two source families, the modified Hartung-Knapp interval was far wider (-2.19 to -0.07) but remained entirely below zero.

Human Affiliation was large in France ($+1.059$ SD, SE 0.112) and positive in Penn ($+0.481$ SD, SE 0.180). The conventional random-effects estimate was $+0.787$ SD (95% CI $+0.22$ to $+1.35$), but heterogeneity was high ($I^2\approx 86.5\%$). The modified Hartung-Knapp interval was extremely wide (approximately -2.88 to $+4.45$). Thus, the appropriate interpretation is a large but imprecisely replicated social signal, not a secure meta-analytic confirmation.

Trait	DL estimate	DL 95% CI	I ²	Modified HK 95% CI	Interpretation
Neuroticism	-1.131	-1.29 to -0.97	0%	-2.19 to -0.07	Most reproducible Sphynx component
Human Affiliation	$+0.787$	$+0.22$ to $+1.35$	86.5%	-2.88 to $+4.45$	Large descriptive signal; no small-k precision

Table 5. Two-source trait-level synthesis. Conventional random-effects intervals are shown for descriptive continuity, but modified Hartung-Knapp intervals better communicate the uncertainty created by $k=2$.

3.6 Exploratory cognition-related owner ratings

Sphynx cats received the highest point-estimate owner-rated Intelligent score among the 11 named French breeds in both the age/sex and fully environmental-adjusted models. The raw mean was $4.53/5$ in Sphynx ($n=57$) versus $4.12/5$ in the domestic/random-bred reference ($n=1,254$). The age/sex-adjusted Sphynx difference was $+0.468$ residual SD (95% CI $+0.245$ to $+0.690$; HC3 $p=3.8\times 10^{-5}$). After full environmental adjustment, the effect was $+0.426$ SD (95% CI $+0.197$ to $+0.656$; $p=0.000263$), still rank 1/11. In 5,000 individual-cat bootstrap resamples of the full model, Sphynx ranked first on the Intelligent item in 63.5% and in the top three in 94.1%. The ordinal-logit sensitivity gave a common odds ratio of 2.37 for a higher Intelligent rating versus the domestic/reference cats (95% CI $1.35-4.15$; $p=0.00256$).

The signal attenuated substantially when the model also adjusted for the four reconstructed personality factors after removing the Intelligent item from their measurement model. The residual Sphynx effect was $+0.238$ SD (95% CI $+0.004$ to $+0.472$; $p=0.0458$), with a point rank of 4/11; bootstrap rank-1 frequency fell to 8.3% and top-three frequency to 43.5%. The item-level context also showed a broader

favorable/social rating pattern: Sphynx ranked first for Amical (friendly), Intelligent, and Affectueux (affectionate), second for Perséverant (persistent), and lowest for Timide (shy), Effrayé (frightened), and Solitaire (solitary). Thus, the high Intelligent rating is not simply noise, but a substantial part of its between-breed prominence overlaps the wider Sphynx personality phenotype.

In the independent Penn/Fe-BARQ nine-country model, Sphynx Trainability was directionally elevated by +0.302 SD relative to the pooled domestic reference (95% CI -0.122 to +0.726; HC3 p=0.163), ranking fourth of 12 displayed pedigree breeds. After additional adjustment for the individual Activity and Sociability-with-People scores, the estimate attenuated to +0.222 SD (95% CI -0.245 to +0.689; p=0.351). PlaysFetch was likewise directionally elevated (+0.341 SD, 95% CI -0.207 to +0.888; p=0.222; rank 4/12). Across seven directly matched breeds, French Intelligent and Penn Trainability effects correlated positively but imprecisely (Spearman rho=0.607, p=0.148; rho=0.543 after excluding Sphynx). These Penn results are supportive in direction but do not independently establish a Sphynx cognitive advantage.

Analysis	Sphynx n	Effect (SD)	95% CI	p	Rank	Interpretation
French Intelligent: age + sex	57	+0.468	+0.245 to +0.690	3.8×10 ⁻⁵	1/11	Strong owner- rated signal
French Intelligent: full environment	57	+0.426	+0.197 to +0.656	0.000263	1/11	Persists after measured environment
French Intelligent: + four personality factors*	57	+0.238	+0.004 to +0.472	0.0458	4/11	Substantially attenuated
Penn Trainability	18	+0.302	-0.122 to +0.726	0.163	4/12	Directionally supportive; imprecise
Penn Trainability + Activity/Sociality	18	+0.222	-0.245 to +0.689	0.351	—	No independent supportive signal
Penn PlaysFetch	18	+0.341	-0.207 to +0.888	0.222	4/12	Behavioral correlate, not cognition

Table 6. Exploratory cognition-related owner-report analyses. *The four French personality factors were refitted without the Intelligent adjective before entering the adjustment model. These analyses do not constitute objective cognitive testing.

4. Discussion

4.1 Principal finding

The central result remains after substantially stronger individual-level testing: Sphynx cats occupy an unusually extreme region of the available domestic-cat personality space. The cleanest evidence comes from the French same-source analysis rather than from the harmonized Atlas. Across four core factors measured in one framework, Sphynx was the most distant eligible breed, remained first after every factor was removed individually, remained first after adjustment for measured housing and lifestyle differences, remained first when the actual within-cat covariance among the four traits was used, and retained rank 1 in 92.94% of individual-cat bootstrap resamples.

This revised hierarchy is more defensible than treating a five-dimensional cross-dataset vector as the primary result. In particular, the French Human Affiliation composite is not treated as an independent fifth dimension because it is built from the same three questionnaire adjectives selected to index Agreeableness [7]. The fact that the Sphynx ranking survives removal of that duplicate item content materially strengthens the descriptive conclusion.

The environmental analysis is especially informative because the Sphynx sample was not compositionally similar to the domestic reference: it was much more commonly indoor-only and more commonly reported in the longest daily owner-contact/observation category. Those differences did explain part of the multivariate separation, but only about one tenth of D4 in the fully adjusted model. The persistence of very low Neuroticism and high Agreeableness after adjustment makes a purely housing-based explanation less plausible, while still leaving breeder practices, early socialization, owner selection, and unmeasured environment unresolved.

4.2 Beyond friendliness: the strongest signal is low Neuroticism

The paper should not be read as a statistical proof that Sphynx is the 'friendliest' cat breed. Human-directed sociality is conspicuous in breed descriptions and in the French data, but the strongest independently replicated component is very low Neuroticism/negative emotionality. Two independent exact-breed estimates were close to one standard deviation below the domestic/random-bred reference, and even the deliberately conservative small-k interval remained below zero.

This distinction matters conceptually. A cat can seek human contact because it is affiliative, because it is unusually bold, because it has been intensively socialized, because it seeks warmth, or through some mixture of these mechanisms. The available data support an extreme profile; they do not isolate a single cause.

4.3 Cross-cohort consistency without manufactured uniqueness

The UK and Penn analyses provide useful falsification pressure. In the UK, the point ranking of Sphynx above Burmese was essentially a tie once uncertainty was considered. In Penn, Sphynx ranked third on the limited activity-plus-human-sociability pair. These findings argue against a claim that Sphynx must

rank first in every dataset or on every reduced trait subset. A more defensible conclusion is that Sphynx repeatedly occupies the extreme portion of the distribution, while the exact ordering among highly social/bold breeds can vary.

The grouped Helsinki category is also informative precisely because it is unusable for a pure Sphynx estimate. Sphynx and Devon Rex were combined in that source [2], and the grouped value was therefore excluded from exact-breed inference. The present result depends on refusing to silently attribute grouped-category behavior to a single breed.

A complementary companion analysis of within-breed personality dispersion in the same Mikkola cohort provides a useful, though non-independent, perspective. In that dataset Sphynx and Devon Rex were combined ($n = 114$), so the result cannot be attributed to Sphynx alone. After covariate adjustment and Yeo-Johnson variance stabilization, the grouped category showed a human-sociability variance ratio of 0.795 relative to the pooled within-breed residual variance (95% bootstrap interval 0.574 to 1.050) and a cat-sociability variance ratio of 0.862 (0.643 to 1.103). An exploratory common-loading latent sensitivity was directionally similar for human sociability (variance ratio 0.711; 95% bootstrap interval 0.376 to 1.144). Thus, the group was not unusually dispersed and may, if anything, have been somewhat more behaviorally concentrated on human sociability. This observation is compatible with the comparatively homogeneous Sphynx behavior described in the earlier Asselineau et al. report [6]. However, exact breed-specific dispersion ranks were not stable across the two large Finnish datasets in the companion analysis, and the grouped Sphynx-Devon Rex definition prevents a Sphynx-specific claim. The cautious hypothesis is therefore that the Sphynx phenotype may reflect a shifted behavioral distribution rather than simply increased within-breed heterogeneity; this should be tested directly in an exact-breed sample.

4.4 Possible mechanisms remain hypotheses

Selective breeding, founder effects, correlated selection, breeder socialization and owner selection are all plausible contributors. The 2012 Sphynx report itself proposed intensive early human contact in breeding colonies as a potential explanation [6]. These observational datasets cannot separate inherited behavioral tendencies from developmental and household effects.

A second line of context concerns cognition-related owner ratings. The new exploratory analyses provide substantially better evidence than the popular breed reputation alone, but still fall short of objective cognitive testing. In France, Sphynx had the highest adjusted Intelligent item point estimate among the 11 named breeds, and the association survived environmental adjustment, ordinal modelling, and individual-cat bootstrapping. However, controlling for the four broader personality factors reconstructed without the Intelligent item reduced the effect from $+0.426$ to $+0.238$ SD and moved the point rank from first to fourth. This attenuation is informative: owners do rate Sphynx as unusually intelligent, but part of that rating appears to travel with the same friendly, fearless, engaged phenotype that defines the broader personality result. The independent Penn cohort was directionally compatible—Sphynx ranked fourth for Trainability and PlaysFetch—but its $n = 18$ estimates were imprecise and nonsignificant. The historical

Animal Planet ranking that placed Sphynx alone in its top intelligence category [12] and current TICA descriptions of the breed as inquisitive and intelligent [11] therefore align with an owner-perception signal rather than validating superior cognitive performance. A performance-based cognitive study remains necessary before making claims about learning, memory, inhibitory control, problem solving, or general cognitive ability.

Thermoregulation is a plausible modifier of proximity-seeking but should not be used as an explanation for the entire phenotype. Hairlessness reduces the insulating role of the coat and can alter thermoregulatory demands [10]. A preference for laps, bedding or other warm surfaces could therefore inflate some forms of owner-perceived contact seeking. However, this mechanism would not by itself explain the large low-Neuroticism effect, and the current datasets lack standardized ambient-temperature, heat-source and warmth-seeking variables.

4.5 Strengths and limitations

Strengths include standardized effect magnitudes rather than informal breed reputations; an exact-breed primary analysis within a single source; explicit removal of overlapping Human Affiliation item content from the multivariate primary outcome; direct reanalysis of the 2,528-cat individual-level French sample; sequential adjustment for measured housing and lifestyle variables; covariance adjustment using actual within-cat residual correlations; 5,000 individual-cat bootstrap resamples; 15 leave-one-adjective-out factor reconstructions; a cognition-related sensitivity module that explicitly tests personality/halo attenuation; transparent reporting of the UK near-tie and small Penn samples; and conservative small-k meta-analytic sensitivity.

Limitations remain substantial. The hypothesis is post-hoc. All principal phenotypes are owner-reported, and breed stereotypes—including the longstanding popular portrayal of Sphynx cats as unusually intelligent, inquisitive and people-oriented—could influence ratings. The French Intelligent outcome is a single owner-rated adjective, not a validated performance-based cognitive measure; Penn Trainability and PlaysFetch are also owner-reported behavioral proxies. The exploratory cognition module was not preregistered and includes multiple related analyses, so nominal p values should not be interpreted as confirmatory evidence of superior cognition. Breed labels are generally owner-reported rather than genomically verified. The French four factors and cross-cohort harmonized constructs are not measurement-invariant latent traits. The Sphynx sample is 57 in France, 20 in the UK and 18 in Penn. The individual-level personality bootstrap conditions on the baseline factor-score definition rather than refitting the entire factor model within every resample; the separate 15-item deletion analysis partly addresses this measurement uncertainty. Environmental adjustment is observational and may include variables that are consequences as well as causes of breed-associated behavior, particularly owner-contact time, so attenuation must not be interpreted causally. The bootstrap interval for the gap between Sphynx and the strongest personality-profile competitor crosses zero, meaning rank 1 is highly stable but not certain. Modified Hartung-Knapp inference with only two independent source families remains very wide. Finally, breed, breeder practices, developmental environment, household context, geography and potential genetic effects remain entangled.

4.6 Future validation

Replication with prospectively collected data is now more valuable than adding further post-hoc rankings to the same datasets. The most informative next step is a mechanism-aware design that separates stable breed-associated behavioral differences from breeder, owner, developmental and thermoregulatory influences.

The next decisive study would be prospective and mechanism-aware: recruit Sphynx alongside Devon Rex, Burmese and random-bred controls; use a validated sociality/fear instrument plus standardized behavioral observation and a small preregistered cognitive battery (for example reversal learning, detour/problem-solving and object-choice tasks); record breeder source and early socialization; and collect ambient temperature, heated-bed access, clothing use and warmth-seeking behavior. Such a design could test whether human contact remains unusually high after thermoregulatory and developmental factors are measured directly.

5. Conclusion

Under a stricter same-source four-factor analysis that avoids duplicate weighting of human-affiliation item content, the Sphynx remains the most multivariately distinctive breed in the available French comparison. The result survives leave-one-factor-out analysis, full adjustment for measured housing and lifestyle variables, covariance adjustment using actual within-cat trait correlations, 5,000 individual-cat bootstrap resamples, and all 15 leave-one-adjective-out factor refits. Measured environment attenuates the profile by roughly 10% rather than eliminating it. The most secure replicated component remains very low Neuroticism/negative emotionality, while Human Affiliation is less independently replicated and much less precise under conservative small-k inference. The current evidence therefore supports an unusually extreme and reasonably robust Sphynx personality phenotype while leaving its mechanisms unresolved.

Declarations

Ethics statement. No new animals or human participants were recruited. This manuscript reports secondary analyses of anonymized data from previously published studies and public/released datasets. Journal-specific wording and any required institutional determination should be finalized before submission.

Data availability. The audited derived analysis workbook accompanying this preprint contains the primary source-family freeze, French individual-level environmental and bootstrap summaries, item-deletion sensitivity summaries, and exploratory French/Penn cognition-related results. The French source dataset is available from Mendeley Data at DOI 10.17632/ht5p5pg7b7 (source version to be confirmed from analysis records). The Penn/Delgado data accompany the 2024 fetching study. Access to other source datasets is governed by their original repositories and licenses. The available derived

workbook documents results but is not a substitute for the original individual-level analysis scripts. The provenance note in the supplementary package distinguishes these materials.

Funding. No dedicated funding was received for this secondary analysis.

Competing interests. The author declares no competing interests.

Related work. The focal hypothesis arose during development of an unpublished broader Feline Personality Atlas. A separate companion manuscript examines breed-associated differences in within-breed personality dispersion using the Mikkola and Salonen datasets. The brief dispersion observation discussed here is explicitly exploratory, derives from the grouped Sphynx-Devon Rex category, and is not treated as independent confirmation. If these manuscripts are submitted, their relationship and shared source data will be disclosed to editors and overlapping analyses will not be duplicated.

AI-assisted work. AI-assisted tools were used for literature organization, analysis-code drafting, and manuscript language editing under author supervision. The author is responsible for verifying the analyses, source data, references and final manuscript.

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Figures

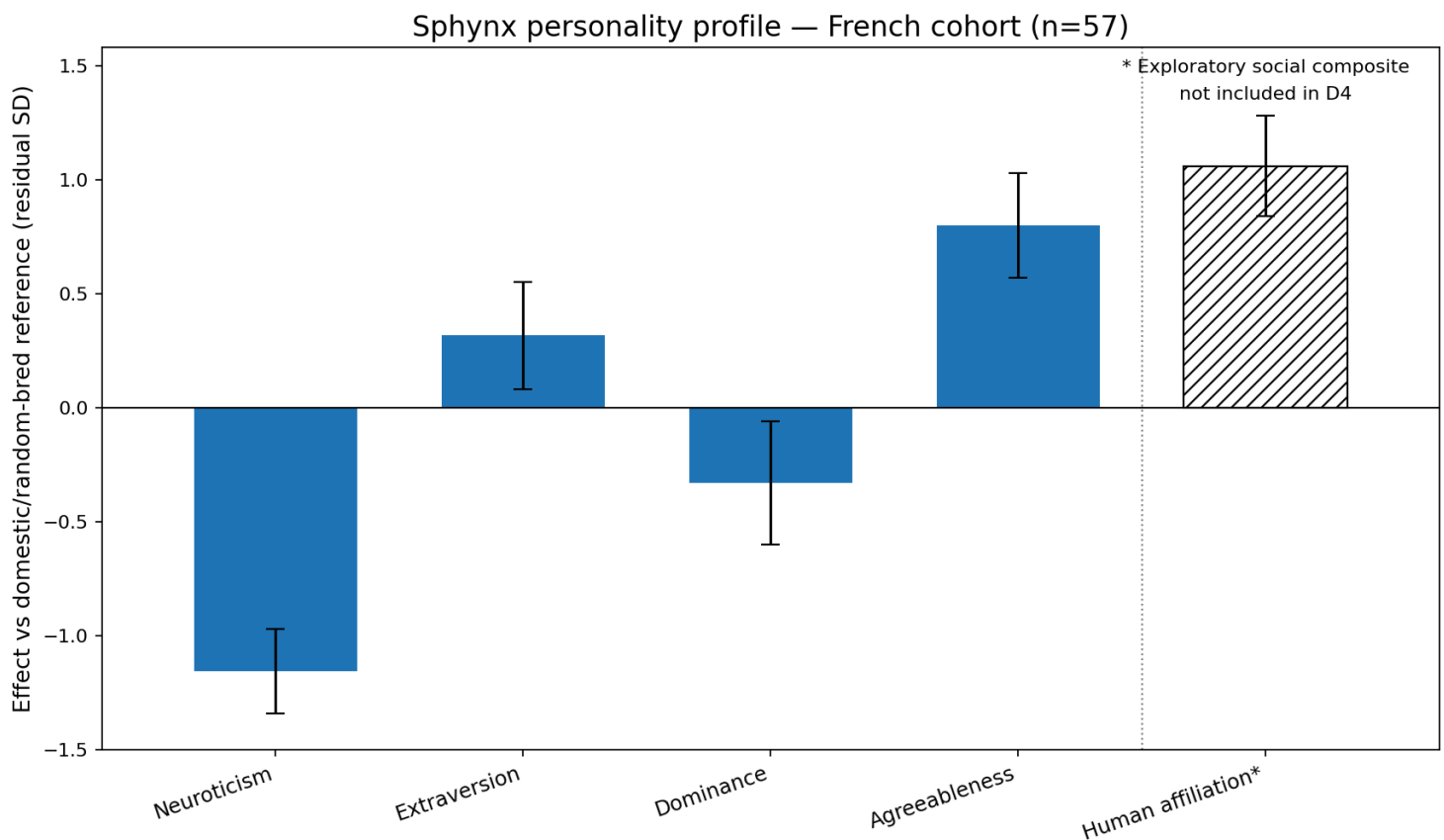


Figure 1

French Sphynx personality profile relative to domestic/random-bred cats. Bars show standardized effects and whiskers represent approximate marginal 95% confidence intervals. Human Affiliation (hatched) is a secondary item-overlapping construct excluded from the primary four-factor distance D4.

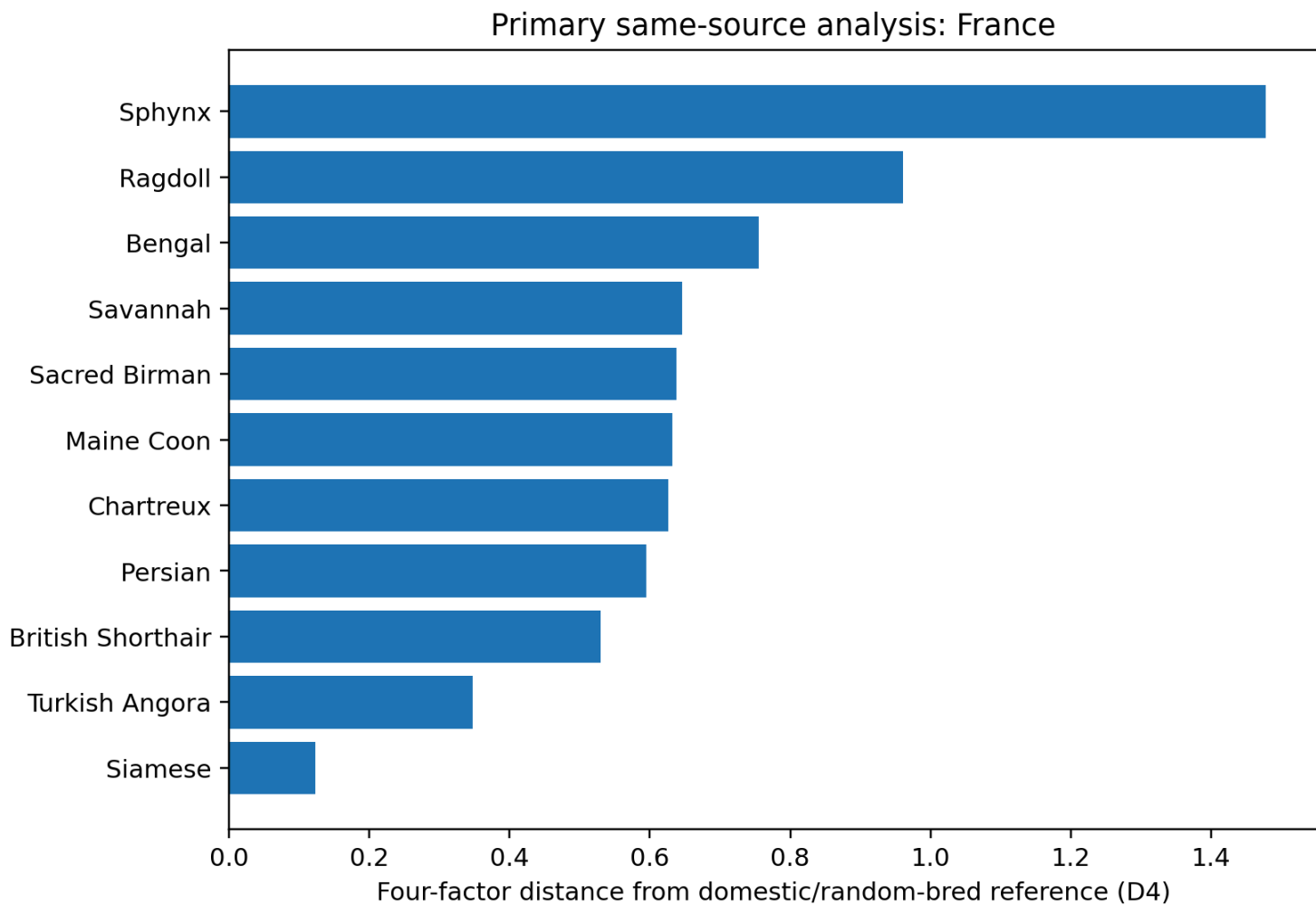


Figure 2

Primary same-source four-factor distance from the domestic/random-bred reference among French breeds with complete profiles and $n \geq 20$.

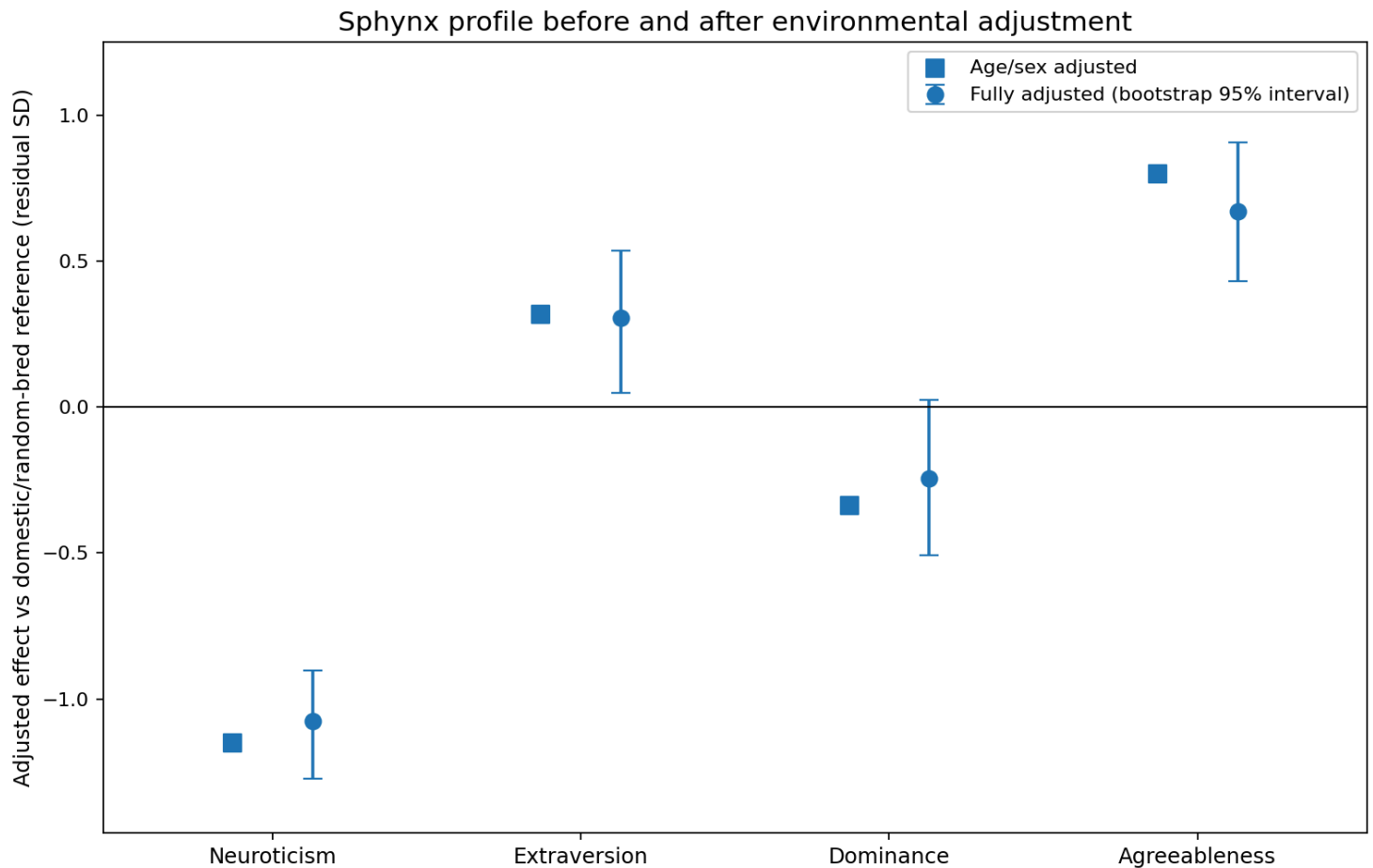


Figure 3

French Sphynx domain-specific effects before and after full adjustment for measured housing and lifestyle variables. Whiskers denote the 2.5th–97.5th percentile limits from 5,000 individual-cat bootstrap resamples of the fully adjusted model; no confidence intervals are displayed for the basic model. These are separate personality domains, not a continuous axis.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [SupplementaryDataS1AuditedAnalysisWorkbook.xlsx](#)