

Class-Functional Assignments after Transversality

Split Classes, Even Fibres, and Candidates for Target 9.4

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Abstract

Parity excludes the standard genetic code from the class of class-functional assignments and is silent on the vertebrate mitochondrial table, whose fibres are even. Joint measurability excludes both published tables from being at once class-measurable and block-measurable, except two-valued maps; that fact is not Target 9.4. Both tables split nineteen of twenty frame classes and leave the same unsplit orbit {AGU, UCA}, painted Ser. Six candidates for an obstruction finer than parity are tested. Those that pass the mitochondrial table are parity itself; those that fail it are either joint measurability or the definition of class-functionality under other names.

The formula asked for by Target 9.4 remains open. The shape is stated: any future invariant must see a multi-valued class by a clause that is neither emptiness of the split set nor evenness of fibres. No axiom is added. The mitochondrial table is not called inferior. No two-cut is constructed.

Keywords: Chrysene Formalism; class-functional assignment; fibre parity; split class; Target 9.4; vertebrate mitochondrial code.

1 Introduction

Parity excludes the standard genetic code from the class of class-functional assignments: methionine and tryptophan are singleton fibres [3, Cor. 5.10]. The vertebrate mitochondrial table has only even fibres [4, Prop. 8.5]. Parity is therefore silent on that table. Target 9.4 of [4] asked for an obstruction finer than parity.

Article 51 already proved a different obstruction. An assignment that is both class-measurable and block-measurable is constant on each incidence component and takes at most two values. Neither published table is of that form. That fact is joint measurability. It is not class-functionality, and it is not Target 9.4.

This paper separates those layers. It freezes the experiment of Article 51 and reads the two NCBI tables as data. It counts split classes: a class is split when the assignment is not constant on it. Both published tables split nineteen of twenty classes and leave the same unsplit orbit, {AGU, UCA}, painted Ser. The four words on which the tables disagree lie in classes that are already split under both, so the transition from mitochondrial to standard does not change the profile.

Six candidates for a finer invariant are tested. Parity

passes the mitochondrial table. Joint measurability is the wrong predicate. Emptiness of the split set, value-signatures of classes, and restriction to one incidence component are the definition of class-functionality under other names. One-residue incidence is not forced without seed or demand, which this paper does not introduce. No candidate is new, evaluable on the mitochondrial table, strictly stronger than parity, and not synonymous with class-functionality.

The formula asked for by Target 9.4 remains open. The shape is stated: any future invariant must see a multi-valued class by a clause that is neither “the assignment is constant on the class” nor “every fibre is even.” Single-generator invariance under flip is recorded so that it is not later offered as that clause; it is a factor of the definition.

The paper does not add an axiom. It does not use Φ . It does not construct a seed, a two-cut, or an occupation of AGR. It does not call the mitochondrial code inferior. It does not reopen polarity.

Section 2 freezes the vocabulary. Section 3 refuses eight entailments. Section 4 imports joint measurability and bounds it. Section 5 is the split profile. Section 6 is the verdict table. Section 7 is the shape and the open formula. Section 8 is the pointer that is not a transition paper.

Section 9 records what remains open.

2 Conventions

This section is definitional. It freezes the experiment of [5], the two published tables as data, the sense of class-functionality and of a split class, and the statement of Target 9.4 that this paper addresses. Later sections may cite these definitions and may not alter them. No candidate invariant is defined here. No census is computed here.

2.1 Logical status

Definition 2.1 (Status labels). As in [1, 5, 6]: [A] axiomatic or finite enumeration; [D] realization theorem; [T] target; [E] documentary or empirical, confined to a remark and entering no proof. The governing restraint of the corpus remains in force: no new axiom.

Remark 2.2 (What is not used). The Identification Hypothesis Φ is not used. No seed, demand graph, refinement operator, or two-cut is constructed. US 12,473,247 is not used. Chirality is not used. The phrase “the mitochondrial code is inferior” does not occur. The standard table is comparison data, not a purpose, and is not used constructively to build an invariant that is then declared independent of it.

2.2 The experiment, imported

Definition 2.3 (Letter assignment and word space). As in [5, 6],

$$FF = A, \quad FB = C, \quad BF = G, \quad BB = U,$$

so that the registry partition is carried to $\{A, U\} \mid \{C, G\}$. Write $\Sigma := \{A, C, G, U\}$ and $W := \Sigma^3$. Thus $|W| = 64$.

Definition 2.4 (Frame group and class statistic). $\text{Fr} = \langle \text{flip}, \text{rev} \rangle$ acts on W by letterwise Watson–Crick complementation and by τ then reverse, with τ fixing A, U and swapping C, G [2, Def. 2.13]. The twenty orbits are the frame classes. Write X for the set of orbits and $T : W \rightarrow X$ for the orbit map.

Definition 2.5 (Blocks). A block is a set $XY^{**} := \{XYZ : Z \in \Sigma\}$. Write $\mathcal{B}$ for the sixteen blocks and $B : W \rightarrow \mathcal{B}$ for the block map.

Definition 2.6 (Incidence components). As in [5, Prop. 6.7],

$$W_0 = \{w \in W : \text{the middle letter of } w \text{ lies in } \{A, U\}\}, \quad (1)$$

$$W_1 = \{w \in W : \text{the middle letter of } w \text{ lies in } \{C, G\}\}. \quad (2)$$

These are the two connected components of the incidence graph of classes and blocks. Both generators of Fr preserve the Watson–Crick class of the middle letter.

Remark 2.7 (Domain). The sample space is W . That identification is [6, Thm. 7.4], under $H_{\text{doc}} \cup H_{\text{id}}$, and is not re-proved. This paper does not discharge polarity from $\mathcal{A}$. If those hypotheses are refused, every statement below that quantifies over W is to be read as quantifying over residual states of cardinality thirty-six, and Target 9.4 has no published table to meet. The paper proceeds under the conditional domain.

2.3 Maps, fibres, splits

Definition 2.8 (Assignment). An assignment is a function $c : W \rightarrow R \cup \{*\}$, where R is a finite set of residue labels and $*$ is the non-residue used in the audit convention of [5, the remark on $*$ and published stops]: identified with NCBI $*$ when a published table is read, and not a residue of production.

Definition 2.9 (Class-functional). An assignment c is *class-functional*, or T -measurable, if $c = f \circ T$ for some $f : X \rightarrow R \cup \{*\}$. Equivalently, c is constant on each frame class.

Definition 2.10 (Block-measurable). An assignment c is *block-measurable*, or B -measurable, if c is constant on each block.

Definition 2.11 (Fibre). The fibre of a label $r \in R \cup \{*\}$ under c is $c^{-1}(r)$. The fibre profile of c is the multiset of fibre cardinalities of labels that occur. A fibre is *odd* if its cardinality is odd.

Definition 2.12 (Parity of a class-functional map). Following [3, Prop. 5.9]: if c is class-functional, every

fibre of c is a union of classes, hence has even cardinality (classes have size two or four). In particular a class-functional assignment cannot realize a singleton fibre.

Definition 2.13 (Split class). Let c be an assignment, not necessarily class-functional. A class $\gamma \in X$ is *split* by c if c is not constant on γ . Write $\text{Split}(c)$ for the set of classes split by c . Blocks are not part of this definition. (A size-two class meets two blocks and a size-four class meets four; that incidence is used only when a later candidate looks at the block partition.)

Remark 2.14 (Split is not a fibre fact). A class may be split while every fibre of c remains even. That possibility is why parity is not Target 9.4.

2.4 The two published functions

Definition 2.15 (Published tables as data). $\mathcal{C}_{\text{std}}$ is NCBI translation table 1, and $\mathcal{C}_{\text{mt}}$ is NCBI vertebrate mitochondrial table 2, both of [7], read as functions $W \rightarrow R \cup \{*\}$ under Definition 2.8. They are data. They discharge no realization hypothesis.

Remark 2.16 (Disagreement set). [5, App. A] records $\{w : \mathcal{C}_{\text{std}}(w) \neq \mathcal{C}_{\text{mt}}(w)\} = \{\text{AUA, UGA, AGA, AGG}\}$. Those four words are comparison data in this paper. They are not operators, and AGR is not a cut (Remark 2.2).

2.5 The target

Target 2.17 (Target 9.4, as addressed). [4, Target 9.4]: an obstruction, finer than fibre parity, to class-functionality of $\mathcal{C}_{\text{mt}}$. This paper asks for an invariant I defined on all T -measurable assignments, such that passing parity is strictly weaker than passing I , and such that $\mathcal{C}_{\text{mt}}$ fails I ; or for a finite list of natural candidates that fail to be such an I . Both outcomes address the target. The first is a formula. The second is a shape: any future I must see a class that meets two blocks with two residues.

Remark 2.18 (Layer 1 is not the target). [5, Thm. 6.8] says that a map which is both T -measurable and B -measurable is constant on each of W_0, W_1 and takes at most two values. Neither published table is of

that form. That fact is imported with the layer-1 restatement and is not Target 2.17.

Remark 2.19 (Where the section stops). The vocabulary is frozen. Split classes are defined for every assignment. The invariant I is not. Candidates are a later section.

3 Non-Implications

The statements below are recorded before any census and before any candidate invariant. Each is a refusal. A later section that writes the refused entailment has left this list.

Proposition 3.1 (Eight refusals). [A] *None of the following implications is a theorem of $\mathcal{A}$, of Article 51, or of this section.*

- (i) *Even fibres do not entail class-functionality.*
- (ii) *Failure of joint measurability does not entail failure of class-functionality.*
- (iii) *A count of split classes does not entail an invariant I .*
- (iv) *Odd fibres of $\mathcal{C}_{\text{std}}$ do not entail a reason $\mathcal{C}_{\text{mt}}$ splits.*
- (v) *The disagreement set $\{\text{AUA, UGA, AGA, AGG}\}$ does not entail Target 2.17.*
- (vi) *Use of $\mathcal{C}_{\text{mt}}$ as data does not entail inferiority of mitochondrial translation.*
- (vii) *Taking the domain to be W does not entail that polarity is a theorem of $\mathcal{A}$.*
- (viii) *An invariant that $\mathcal{C}_{\text{mt}}$ fails does not entail the two-cut operator, and does not entail occupation of AGR.*

Proof. Each clause is a mismatch of objects.

- (i). Definition 2.12 is a necessary condition on class-functional maps. Even fibres are realized by maps that are not constant on classes: $\mathcal{C}_{\text{mt}}$ is the standing example [4, Prop. 8.5]. Necessity is not sufficiency.
- (ii). Theorem 4.1 constrains maps that are both T -measurable and B -measurable. A map may be the first and not the second. Remark 4.3 is that sentence. Layer 1 is not layer 3.
- (iii). $\text{Split}(c)$ is defined for each assignment c (Definition 2.13). An invariant I of Target 2.17 must be defined on all T -measurable assignments and must be strictly finer than parity. A number attached to two published

functions is not yet that invariant.

(iv). Singleton fibres of $\mathcal{C}_{\text{std}}$ exclude class-functionality of $\mathcal{C}_{\text{std}}$ [3, Cor. 5.10]. They say nothing about a table whose fibres are even. Target 9.4 was registered against $\mathcal{C}_{\text{mt}}$ for that reason (Remark 4.4).

(v). The four words of Remark 2.16 distinguish two published functions. Target 2.17 is about class-functionality of one of them. A disagreement set is not an obstruction to T -measurability of either.

(vi). Definition 2.15 reads a published function. Inferiority is a comparison of purposes. No purpose is defined. The sentence is refused by Remark 2.2.

(vii). Remark 2.7 imports [6, Thm. 7.4] under $H_{\text{doc}} \cup H_{\text{id}}$. That theorem is a realization, not a theorem of $\mathcal{A}$. Using W as the sample space does not discharge polarity from the axioms.

(viii). An invariant I that $\mathcal{C}_{\text{mt}}$ fails may or may not be failed by $\mathcal{C}_{\text{std}}$. Even in the latter case, the operators that move one table to the other are a different paper. AGR as occupation of a liberated half is [4, Cor. 6.4] read in reverse, not Target 9.4. $\square$

Remark 3.2 (How the list is used). The census may count split classes and must not call the count I (iii). Layer 1 may be applied to both tables and must not be called Target 9.4 (ii). A later pointer to AUA, UGA, AGR may record a difference and must not start the two-cut paper (v), (viii). Inferiority remains unwritten (vi).

Remark 3.3 (Where the section stops). The list is not a proof that no I exists. It is a proof that several routes do not produce one. Candidates are a later section.

4 Layer 1, Imported

The meet of the two σ -algebras is already a theorem of [5]. This section restates it, applies it to the two published functions, and stops. Nothing here is Target 2.17.

Theorem 4.1 (Joint measurability). *[A] Imported from [5, Thm. 6.8]. An assignment that is both T -measurable and B -measurable is constant on each component W_0, W_1 . Equivalently*

$$\sigma(T) \cap \sigma(B) = \{\emptyset, W_0, W_1, W\}. \quad (3)$$

Such an assignment takes at most two values.

Proof. [5, Thm. 6.8], using Definition 2.6. A level set of a jointly measurable assignment is a union of classes and a union of blocks, hence a union of incidence components. There are two components. $\square$

Corollary 4.2 (Neither published table is jointly measurable). *[A] Neither $\mathcal{C}_{\text{mt}}$ nor $\mathcal{C}_{\text{std}}$ is both T -measurable and B -measurable.*

Proof. Each function takes more than two values. Theorem 4.1 forbids that of a jointly measurable assignment. The value counts are those of [5, App. A]: $\mathcal{C}_{\text{mt}}$ realizes twenty residues together with $*$; $\mathcal{C}_{\text{std}}$ likewise, with a different fibre profile. $\square$

Remark 4.3 (What the corollary does not say). Corollary 4.2 does not say that $\mathcal{C}_{\text{mt}}$ fails to be class-functional. It says that $\mathcal{C}_{\text{mt}}$ fails to be class-functional and block-measurable. A map may be T -measurable and not B -measurable. Target 2.17 is about the first property only. Layer 1 is therefore not an obstruction to class-functionality. It is an obstruction to joint measurability, already proved, and already silent on even fibres.

Remark 4.4 (Parity remains silent on $\mathcal{C}_{\text{mt}}$). [4, Prop. 8.5] and [5, App. A]: every fibre of $\mathcal{C}_{\text{mt}}$ is even. Definition 2.12 therefore does not exclude class-functionality of $\mathcal{C}_{\text{mt}}$. $\mathcal{C}_{\text{std}}$ is excluded by singleton fibres Met and Trp [3, Cor. 5.10]. Those two facts are why Target 9.4 was registered against the mitochondrial table and not against the standard table.

Remark 4.5 (Where the section stops). The imported theorem is applied and bounded. The next work is the refusal list, then the census of split classes, which is not a restatement of (3).

5 Layer 2, Census

The object of this section is $\text{Split}(c)$ for $c \in \{\mathcal{C}_{\text{mt}}, \mathcal{C}_{\text{std}}\}$. The count is generated from Definitions 2.4 and 2.13 and from Definition 2.15. It is not an invariant I (Proposition 3.1(iii)).

Proposition 5.1 (When a class is split). *[A] A class γ is split by c if and only if c is not constant on γ . In particular $\text{Split}(c) = \emptyset$ if and only if c is class-functional.*

Proof. Immediate from Definitions 2.9 and 2.13. If c is constant on γ , the two intersections $\gamma \cap b_i$ carry the same value of c . If c takes two values on γ , those values occur on words of γ , hence on the blocks those words inhabit. $\square$

Remark 5.2 (Why the census is still needed). Proposition 5.1 makes $|\text{Split}(c)| > 0$ equivalent to failure of class-functionality. That equivalence is not Target 2.17: it is the definition. The census records *which* classes split and whether the two published tables differ in that respect. An invariant finer than parity will have to see those classes without being synonymous with Split.

Theorem 5.3 (Split profile). *[A] Both published tables split nineteen classes and leave one unsplit. The unsplit class is the same orbit*

$$\{\text{AGU}, \text{UCA}\}, \quad (4)$$

of size two, on which both tables take the single value Ser. Of the nineteen split classes, seven have size two and twelve have size four. The size-four classes are all of the size-four orbits. The seven split size-two orbits are every size-two orbit other than (4).

Proof. Enumeration of the twenty orbits of Fr on W under Definition 2.4, against Definition 2.15. The orbit list and the values of both tables on each orbit are Appendix A. The two tables disagree on $\{\text{AUA}, \text{UGA}, \text{AGA}, \text{AGG}\}$ (Remark 2.16); each of those four words lies in a class that is already split under both tables, so the disagreement does not change the split profile. $\square$

Corollary 5.4 (The raw count does not distinguish the tables). *[A] $|\text{Split}(\mathcal{C}_{\text{mt}})| = |\text{Split}(\mathcal{C}_{\text{std}})| = 19$. The count $|\text{Split}(\cdot)|$ is therefore not a quantity on which a later candidate can separate the two published functions.*

Remark 5.5 (What changes on the four words). The class of AUA is $\{\text{AUA}, \text{UAU}\}$: $\mathcal{C}_{\text{std}}$ paints it Ile against Tyr, $\mathcal{C}_{\text{mt}}$ Met against Tyr. Still split. The class of UGA is $\{\text{ACU}, \text{UGA}\}$: $\mathcal{C}_{\text{std}}$ paints it Thr against *, $\mathcal{C}_{\text{mt}}$ Thr against Trp. Still split. The classes of AGA and AGG are size four and remain split under both tables, with * replacing Arg on those two words in $\mathcal{C}_{\text{mt}}$. The census is insensitive to the transition operators that a later paper

may define on those words (Proposition 3.1(v)(viii)).

Remark 5.6 (Layer 2 is not I). Theorem 5.3 is a pair of numbers attached to two functions. Target 2.17 asks for an invariant of all T -measurable assignments, or for candidates that fail to be one. A T -measurable assignment has empty split set. The census cannot be evaluated on that class of maps except as the constant 0. Hence the census is not I .

Remark 5.7 (Where the section stops). Nineteen classes split. One class, Ser on $\{\text{AGU}, \text{UCA}\}$, does not. The next section tests candidates against that fact and against parity, without renaming the count.

6 Candidates for I

Target 2.17 asks for an invariant I of assignments such that

- (a) every class-functional assignment passes I ;
- (b) every assignment that passes I has even fibres (so I is at least as strong as parity);
- (c) some even-fibre assignment fails I (so I is strictly stronger than parity);
- (d) $\mathcal{C}_{\text{mt}}$ fails I .

If I is defined only on T -measurable assignments, then (d) is not evaluable. Candidates below are therefore tested as predicates on all assignments $W \rightarrow R \cup \{*\}$. A candidate that is synonymous with class-functionality satisfies (a)–(d) and is rejected as not new: it is Proposition 5.1 renamed.

6.1 C1. Fibre parity

Proposition 6.1 (C1). *[A] Let $I_{\text{par}}(c)$ hold if and only if every fibre of c is even. Then (a) and (b) hold, (c) fails, and (d) fails. $\mathcal{C}_{\text{mt}}$ passes I_{par} . $\mathcal{C}_{\text{std}}$ fails it.*

Proof. Definition 2.12 and Remark 4.4. Even-fibre maps that are not class-functional exist; $\mathcal{C}_{\text{mt}}$ is one. So (c) fails in the sense that I_{par} is not *strictly* stronger than itself. The candidate is parity. It is not Target 2.17. $\square$

6.2 C2. Joint measurability

Proposition 6.2 (C2). *[A] Let $I_{\text{int}}(c)$ hold if and only if c is both T -measurable and B -measurable. Then (a) fails: class-functional maps need not be block-measurable, and Theorem 4.1 says the jointly measurable ones take at most two values. (d) holds by Corollary 4.2, for the wrong reason. I_{int} is layer 1, not Target 2.17.*

Proof. Remark 4.3 and Proposition 3.1(ii). $\square$

6.3 C3. Empty split set

Proposition 6.3 (C3). *[A] Let $I_{\text{spl}}(c)$ hold if and only if $\text{Split}(c) = \emptyset$. Then (a)–(d) all hold, and I_{spl} is identical with class-functionality (Proposition 5.1). The candidate is rejected as not an invariant finer than the definition.*

Proof. Theorem 5.3 gives (d). Parity is strictly weaker because $\mathcal{C}_{\text{mt}}$ has even fibres and nonempty split set. The predicate is the property Target 2.17 was meant to obstruct by other means. $\square$

6.4 C4. Value signature of a class

Proposition 6.4 (C4). *[A] Let the signature of a class γ under c be the multiset $\{c(w) : w \in \gamma\}$. Let $I_{\text{sig}}(c)$ hold if and only if every signature is a singleton. Then $I_{\text{sig}} = I_{\text{spl}}$. The candidate is C3 relabelled and is rejected with C3.*

Proof. A signature is a singleton if and only if c is constant on the class. $\square$

Remark 6.5 (Block patterns are the wrong side). The patterns (4) and (2, 2) of [5] §8 are patterns of c on blocks. They constrain B -measurable refinements, not T -measurability. Using them as I would repeat layer 1's confusion of the two partitions. Not a candidate.

6.5 C5. Restriction to a component

Proposition 6.6 (C5). *[A] Let $I_0(c)$ hold if and only if $c|_{W_0}$ is class-functional for the restricted experiment on W_0 , and likewise I_1 on W_1 . Then $I_0 \wedge I_1$ is again class-functionality on W , because every class lies in one component (Definition 2.6). The candidate is C3 cut in two and is rejected with C3.*

Proof. No class meets both W_0 and W_1 . Constancy on every class is the conjunction of constancy on classes in W_0 and constancy on classes in W_1 . $\square$

Remark 6.7 (Both components split). The unsplit class (4) has middle letters G and C, hence lies in W_1 . Both components contain split classes under both published tables (Appendix A: e.g. $\{\text{AAA}, \text{UUU}\} \subset W_0$ and $\{\text{CCC}, \text{GGG}\} \subset W_1$). Restriction does not isolate the obstruction in one component.

6.6 C6. One-residue incidence

Proposition 6.8 (C6). *[A] Let $\Gamma_r(c)$ be the bipartite graph of classes and blocks that meet $c^{-1}(r)$. Let $I_{\text{dem}}(c)$ hold if and only if, for every occurring r , each connected component of $\Gamma_r(c)$ is a star with class-centre, or some other named shape. No such shape is forced by class-functionality alone: a class-functional residue of fibre size four may occupy two size-two classes in two blocks, or one size-four class in four blocks. Without a further hypothesis (demand, seed, refinement) the shape is not an invariant of all T -measurable maps. The candidate is not evaluated further in this paper.*

Proof. Class-functionality constrains values on classes, not the incidence geometry of a single fibre beyond that fibre being a union of classes. Any additional shape is a new hypothesis and is refused by Remark 2.2 if it is a seed or a demand graph in disguise. $\square$

6.7 Verdict table

	Candidate	Verdict
C1	fibre parity	passes $\mathcal{C}_{\text{mt}}$; not the target
C2	joint measurability	layer 1; not class-functionality
C3	empty split set	equivalent to the definition
C4	singleton signatures	C3 relabelled
C5	restriction to W_i	C3 cut in two
C6	one-residue incidence	not forced without new hypotheses

Remark 6.9 (Where the section stops). No candidate supplies an I that is new, evaluable on $\mathcal{C}_{\text{mt}}$, strictly stronger than parity, and not synonymous with class-functionality. The next section records that fact as the layer-3 statement. It does not invent a seventh candidate.

7 Layer 3

Section 6 produced no candidate that is new, evaluable on $\mathcal{C}_{\text{mt}}$, strictly stronger than parity, and not synonymous with class-functionality. This section records that fact as a theorem. It does not add a seventh candidate.

Theorem 7.1 (Target 9.4 as a shape). *[A] Among the predicates C1–C6 of Section 6, none is an invariant I satisfying (a)–(d) of that section except the predicates synonymous with class-functionality (C3, C4, C5). Those synonyms are rejected as not finer than the definition. Parity (C1) is satisfied by $\mathcal{C}_{\text{mt}}$. Joint measurability (C2) is not a predicate of class-functionality. One-residue incidence (C6) is not forced by class-functionality alone.*

Proof. Propositions 6.1–6.8. $\square$

Corollary 7.2 (Formula remains open). *[T] Target 2.17, read as a request for a formula I that is not synonymous with class-functionality, remains open. The target, read as a request for the shape any such I must have, is discharged by Theorem 7.1 together with Theorem 5.3: I must distinguish a class that meets two or more blocks with two or more values from a class painted with one value, and must do so by a clause that is not “the assignment is constant on the class” and not “every fibre is even.”*

Remark 7.3 (What would count as a formula). A future I counts if it is a predicate on assignments such that class-functional maps pass, some even-fibre map fails, $\mathcal{C}_{\text{mt}}$ fails, and the predicate is not equivalent to emptiness of Split. Invariance under a single generator of Fr is not such an I : it is a proper factor of class-functionality, $\mathcal{C}_{\text{mt}}$ fails it (Appendix A: $\mathcal{C}_{\text{mt}}(\text{AAA}) \neq \mathcal{C}_{\text{mt}}(\text{UUU})$), and it is still a fragment of the definition rather than a different kind of constraint. It is recorded so that it is not offered later as if it were new.

Remark 7.4 (Single-generator invariance). *[A] Class-functionality is invariance under both generators of Fr. Invariance under flip alone, or under rev alone, implies even fibres (flip is fixed-point-free, so its orbits have size two). $\mathcal{C}_{\text{mt}}$ fails invariance under flip, as the size-two orbit {AAA, UUU} already shows. The predicate is strictly stronger than parity and strictly weaker than class-functionality. It is not used as I in Theorem 7.1 because it does not leave the orbit equivalence relation*

of Fr.

Remark 7.5 (Where the section stops). The formula is open. The shape is stated. The next section does not start the two-cut paper and does not treat Corollary 7.2 as a motive for AUA, UGA, or AGR.

8 What This Does Not Start

Corollary 7.2 is not a construction of δ_{AU} , δ_{UG} , or ρ_{AG} . This section records the pointer and stops.

Proposition 8.1 (No operator is forced). *[A] Theorem 7.1 does not determine a map that sends $\mathcal{C}_{\text{mt}}$ to $\mathcal{C}_{\text{std}}$. The two published functions have the same split profile (Theorem 5.3, Corollary 5.4). An invariant that failed one and passed the other was not found. The four disagreement words of Remark 2.16 therefore remain comparison data.*

Proof. The split count is nineteen on both tables. C1–C6 do not separate them. Proposition 3.1(v)(viii). $\square$

Remark 8.2 (Three moves, two kinds). If a later paper defines operators taking $\mathcal{C}_{\text{mt}}$ to $\mathcal{C}_{\text{std}}$, they are of two kinds, already distinguished in [5] and [4, Cor. 6.4]:

- further division of an occupied (2, 2) block, at AUA and at UGA;
- occupation of a liberated purine half, at AGR.

The second is not a cut. Naming all three “two-cut” is refused here as it will be refused there.

Remark 8.3 (No motive from this paper). Nothing in Theorems 5.3 or 7.1 compares purposes of mitochondrial and nuclear translation. Inferiority remains unwritten (Proposition 3.1(vi), Remark 2.2). An environmental hypothesis that might later justify ρ_{AG} or δ_{AU} is not supplied here and is not implied by an open formula for I .

Remark 8.4 (What a later paper may cite). It may cite the common split profile, the unsplit Ser class (4), and the shape in Corollary 7.2. It may not cite this paper as having produced δ or ρ , or as having shown that $\mathcal{C}_{\text{std}}$ passes an I that $\mathcal{C}_{\text{mt}}$ fails.

Remark 8.5 (Where the section stops). The transition paper remains a different paper. Targets other than 9.4 are the next section.

9 Targets

Target 2.17 is the only target this paper addresses. The statements below record what remains open and what was never this paper's object. No new target is added to the register of [4].

Target 9.1 (Target 9.4, after this paper). Two readings, both allowed.

- (a) As a *shape*: discharged by Theorem 7.1 and Corollary 7.2. Any future I must see a multi-valued class by a clause that is neither emptiness of Split nor evenness of fibres.
- (b) As a *formula*: open. C1–C6 do not supply one.

Target 9.2 (Unchanged from [4]). The following remain exactly where [4] left them.

- (i) Target 9.1: $H_{\text{split-chem}}$ at UU.
- (ii) Target 9.2: the three unassigned classes.
- (iii) Target 9.3: $H_{\text{lib-env}}$.
- (iv) Target 9.7: chain polarity from $\mathcal{A}$ alone. Article 52 realized it under $H_{\text{doc}} \cup H_{\text{id}}$; that realization is not a theorem of $\mathcal{A}$.
- (v) Target 9.8: coordinated vessels.
- (vi) Target 9.9: further divisions beyond AUA and UGA.

None is used, and none is advanced. The transition operators of Remark 8.2 are not Target 9.9 and are not started here.

Remark 9.3 (Unused structure). Φ is unused. The dual cipher of A_8 is unused. Chirality and $C6\alpha$ are unused. The standard code is comparison data only (Remark 2.2).

Remark 9.4 (What Articles 51 and 52 may cite). [5] may cite Theorem 5.3 as the split profile of the two tables it already used as audit data. [6] is untouched: polarity is not reopened. Neither paper acquires a

formula for I .

Remark 9.5 (Where the paper stops). The object was an obstruction finer than parity. The obstruction as a shape is that a class carries two values. The obstruction as a formula other than that sentence is not produced.

A Orbit census

Generated from Definition 2.4 and Definition 2.15. Re-running the enumeration is the verification. Values are one-letter residue codes with * written *. Words in each orbit are listed in lexicographic order; values follow that order.

$ \gamma $	orbit	$\mathcal{C}_{\text{std}}$	$\mathcal{C}_{\text{mt}}$	split
2	AGU, UCA	S, S	S, S	no
2	AAA, UUU	K, F	K, F	yes
2	ACU, UGA	T, *	T, W	yes
2	AUA, UAU	I, Y	M, Y	yes
2	CAG, GUC	Q, V	Q, V	yes
2	CCC, GGG	P, G	P, G	yes
2	CGC, GCG	R, A	R, A	yes
2	CUG, GAC	L, D	L, D	yes
4	AAC, CUU, GAA, UUG	N, L, E, L	N, L, E, L	yes
4	AAG, CAA, GUU, UUC	K, Q, V, F	K, Q, V, F	yes
4	AAU, AUU, UAA, UUA	N, I, *, L	N, I, *, L	yes
4	ACA, AGA, UCU, UGU	T, R, S, C	T, *, S, C	yes
4	ACC, CCU, GGA, UGG	T, P, G, W	T, P, G, W	yes
4	ACG, CGA, GCU, UGC	T, R, A, C	T, R, A, C	yes
4	AGC, CGU, GCA, UCG	S, R, A, S	S, R, A, S	yes
4	AGG, CCA, GGU, UCC	R, P, G, S	*, P, G, S	yes
4	AUC, CAU, GUA, UAG	I, H, V, *	I, H, V, *	yes
4	AUG, CUA, GAU, UAC	M, L, D, Y	M, L, D, Y	yes
4	CAC, CUC, GAG, GUG	H, L, E, V	H, L, E, V	yes
4	CCG, CGG, GCC, GGC	P, R, A, G	P, R, A, G	yes

The four disagreement words occupy three already-split classes (AUA with UAU; UGA with ACU; AGA in {ACA, AGA, UCU, UGU}; AGG in {AGG, CCA, GGU, UCC}).

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