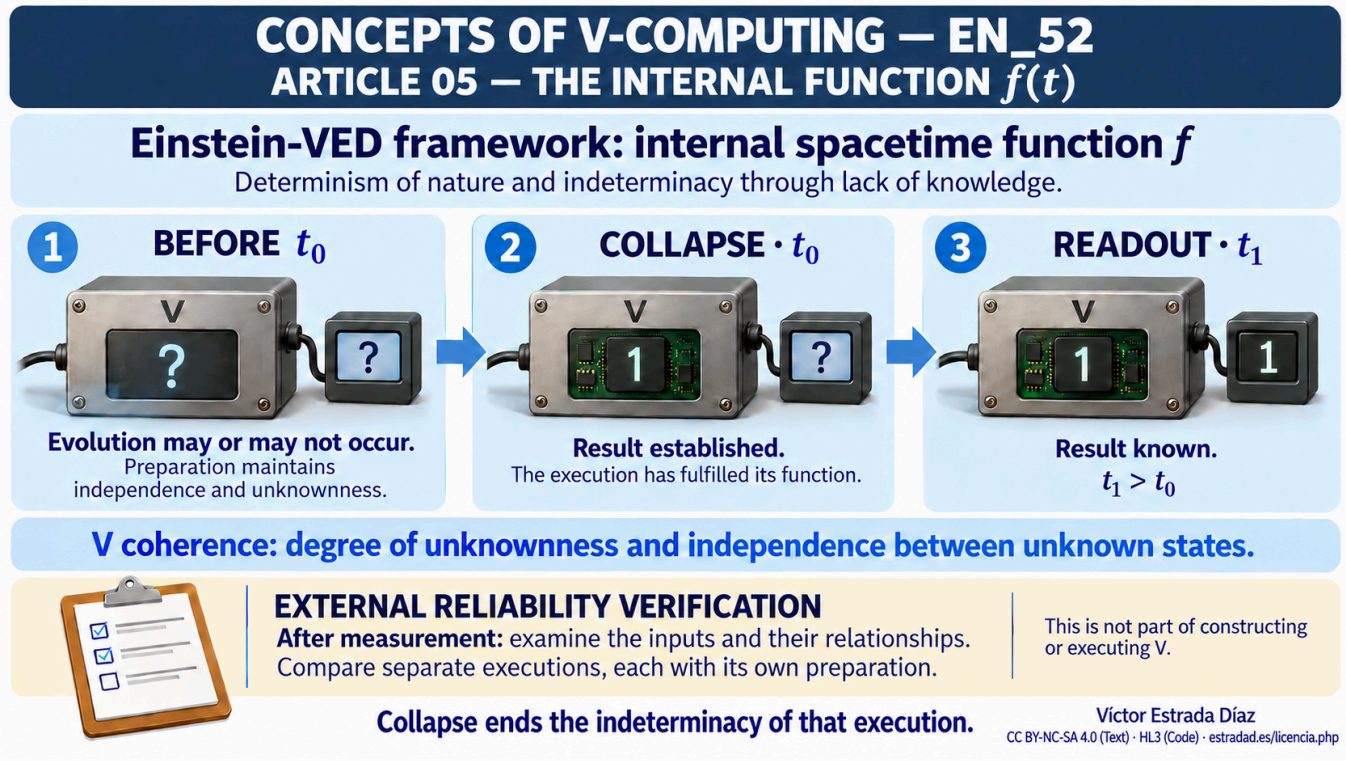
CONCEPTS OF V-COMPUTING — EN_52

ARTICLE 05 — THE INTERNAL FUNCTION f(t)



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1. PURPOSE

Within the Einstein-VED framework, the author introduces a function f internal to spacetime to address the relation between nature's determinism and the indeterminacy associated with lack of knowledge of its internal reality.

In this proposal, nature is deterministic, but indeterminacy exists through lack of knowledge of its internal reality. What is unknown does not cease to have reality because the machine does not know its state.

The function f internal to spacetime is the one the author introduces in Einstein-VED to relate that determinism to quantum indeterminacy. This is the premise of the framework from which V is built.

Knowing the construction, its purpose and its relations does not amount to knowing the internal state of a prepared execution.

2. EVOLUTION AND RESULT

The V machine can be built for a purpose and tested with fixed values. Once prepared for the execution considered, its internal state must remain unknown to the machine before $t = t_0$.

No particular form of internal evolution is required. What matters is maintaining independence and unknownness before $t = t_0$.

Preparation must ensure both conditions hold throughout that interval, not only at the initial moment.

Internal evolution may or may not occur. If an unknown state evolves in an unknown way and the required independence is maintained, it continues to satisfy the V condition.

If it converges to a state known or deducible by the machine before t_0, it ceases to satisfy that condition. Convergence alone does not violate it if the state remains unknown and independent.

In the author's framework, V coherence expresses the degree to which what is not known is genuinely unknown and independent of the other unknown states.

Preparation must maintain that condition before t_0. Coherence can only be measured after collapse; no prior measurement is introduced that provides access to states that must remain unknown.

Checking coherence or decoherence is an external verification and reliability mechanism. It is not part of the V machine's construction and does not add a phase to its execution.

Once measurement is completed, after t_0, the previously unknown inputs can be known and examined. Their degree of independence and their relations are then checked to assess whether the required conditions were maintained before collapse.

Separate executions may also be performed, each with its own preparation, and the resulting data compared to check whether the inputs that had to be unknown really were unknown and maintained the required independence.

This subsequent verification examines execution reliability. It does not give V advance knowledge of its inputs or intervene to determine its result.

3. COLLAPSE AND READOUT

At t_0, collapse establishes that execution's result and the V machine has fulfilled its function.

Triggering collapse ends the indeterminacy of that execution's result: what previously remained unresolved is fixed in a specific result.

This is the meaning of the end of indeterminism in V within the author's framework. It does not mean that no internal state existed beforehand or that its evolution had to be known for the machine to operate.

Before t_0, preparation maintains the required independence and unknownness. At t_0, collapse resolves the result. Its acquisition may be completed afterwards.

The indeterminacy resolved by collapse must be distinguished from the lack of knowledge that the result's recipient may still have. The machine has already fulfilled its function even if that result has not yet been communicated or read.

At t_1, acquisition of the result is completed. It may be the case that $t_1 > t_0$.

Once obtained, that execution's result is known: it is not treated as a probability of what might have resulted.

Subsequent readout obtains the result established at t_0. It does not turn that result into the value the function might have at another instant.

Collapse may occur without subsequent readout. A new execution requires repeating preparation and again ensuring the required independence and unknownness before the new t_0.

4. RELATION TO V1

V1 provides an already established example for the Deutsch problem: distinguishing constant and balanced binary functions.

The local report establishes, for the answer bit:

$q_0 = f_o(0)$ XOR $f_o(1)$

Here f_o denotes the Deutsch oracle function; it is not the time function f(t).

The answer is 0 for tables 00 and 11, and 1 for 01 and 10. All four cases agree with the protocol's Q1 reference.

The local structural analysis gives a cost of O(1) per execution for this fixed-size circuit. That count does not measure latencies against a physical quantum computer.

The reference documentation for the V1/Q1 comparison and its time order is the ES_52 work in UNIHOLOG and DEMUESTRA/Proyectos/ES_52. Complexity order is distinguished from actual duration in seconds.

In DEMUESTRA, documentary verification will be performed exclusively on the Spanish .md files in Proyectos/ES_52. This reference identifies the documentation to be checked; it does not declare that a new verification of its results has been performed.

5. CONCLUSION

The internal function f belongs to the Einstein-VED framework from which V construction is proposed. The proposal distinguishes internal reality from knowledge of it.

For the V machine, internal evolution may or may not occur: the requirement before collapse is to maintain independence and unknownness. Their degree defines V coherence, which is measured only after collapse. Preparation must maintain these conditions before to. Collapse establishes the result and acquisition allows it to be known afterwards.

This is why triggering collapse ends the indeterminacy of that execution: the result is established at to, even if knowledge of it is completed at t1. To set up another execution under V conditions, the machine must be prepared again.

6. LOCAL ES_52 REFERENCES

Base project, section 9: ./../UNIHOLOG/ES_52_Maquina_V_UNIHOLOG.pdf Established V1 result for Deutsch: ./../UNIHOLOG/ES_52_Resultados_preparacion.pdf Demonstration: ./../DEMUESTRA/Proyectos/ES_52/ES_52_Maquina_V_UNIHOLOG.pdf Relations, measurement and Bell: ./../DEMUESTRA/Proyectos/ES_52/ES_52_Relaciones_medida_y_Bell.pdf

Scope of verification in DEMUESTRA: Spanish .md files only. Translations or other formats will not be used as substitutes for that review.

Local reports previously consulted in UNIHOLOG:
./datos/ES_52_EnsayoBellV1/resultado_asentado_v1.json
./datos/ES_52_EnsayoBellV1/analisis_complejidad_v1.json

RELATION TO THE SERIES

Previous: ./pdfs/EN_52_04_ConceptosVcomputacion.pdf

Next: ./pdfs/EN_52_06_ConceptosVcomputacion.pdf

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