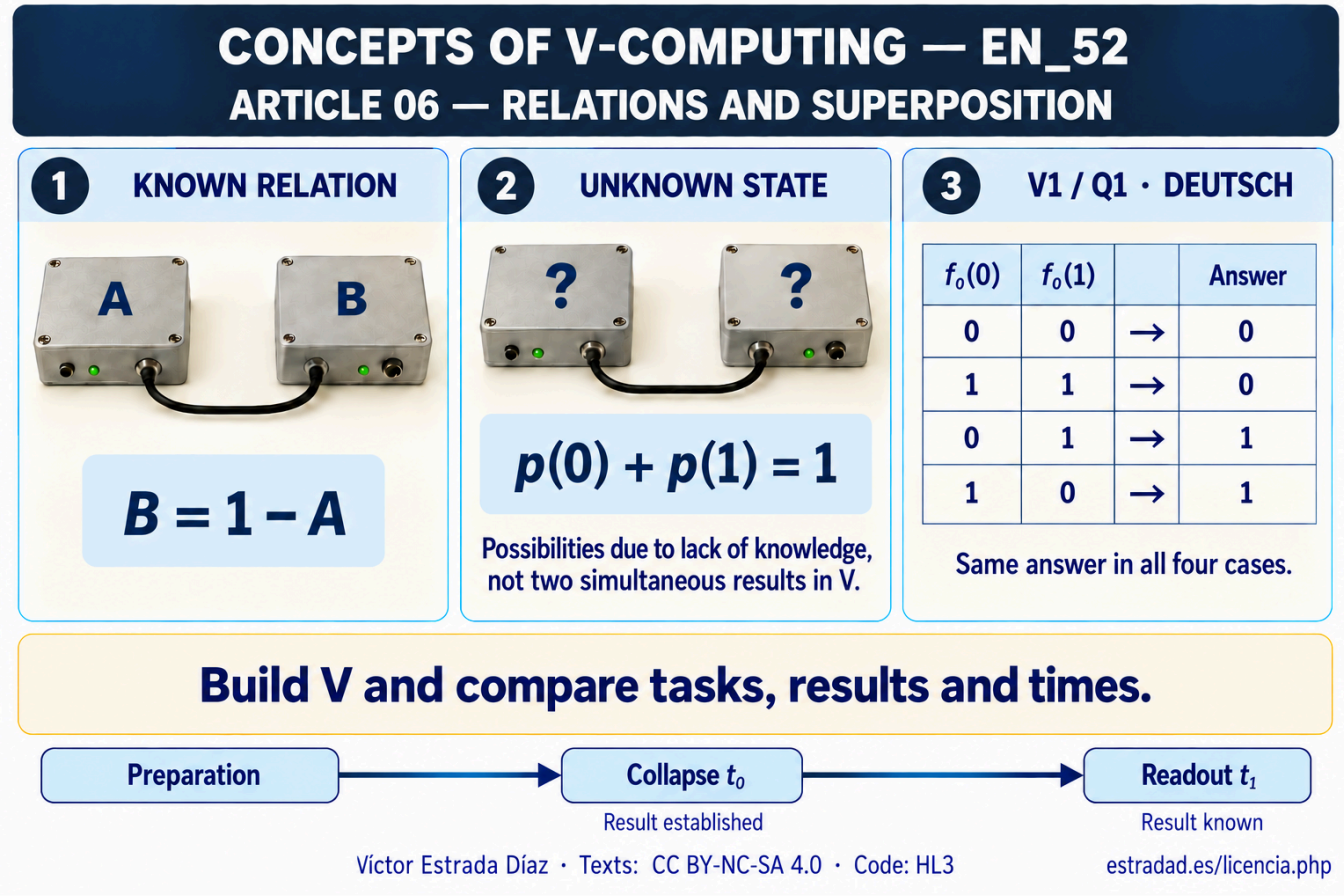
CONCEPTS OF V-COMPUTING — EN_52

ARTICLE 06 — RELATIONS AND SUPERPOSITION



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1. PURPOSE

A relation may be known even though its values are unknown. This distinction allows a V machine to be built, its operations defined and a result obtained without prior knowledge of its internal states.

The objective is to build V and confront it with the same problems as its Q reference to compare results and times. There is no need to adopt an interpretation of Q's internal reality to define V's construction.

2. KNOWING THE RELATION

Consider two binary values A and B related by:

$B = 1 - A$

Knowing this relation allows us to state that the values are opposite without knowing which is 0 and which is 1.

The compatible possibilities are:

A = 0, B = 1

A = 1, B = 0

Listing those possibilities in an explanation does not imply that the machine must store or iterate through them in order to operate.

3. OPERATING WITH UNKNOWN VALUES

Preparing a relation does not require first reading its unknown inputs. Construction establishes connections and operations; values that must remain unknown are not obtained in advance to perform those operations.

Internal evolution may or may not occur. Preparation must maintain the required unknownness and independence before t_0, as explained in EN_52_05.

In V, preparation, collapse at t_0 and acquisition completed at t_1 retain the meaning given in article 04.

A new execution requires new preparation. Rereading an already established result does not replace that preparation.

4. UNKNOWN STATES AND UNCERTAINTY

In V, the unknown state is not defined as a superposition of the values 0 and 1.

The fact that both results are possible in the description of someone who does not know them does not mean that the V unit must contain both values simultaneously as execution results.

The degree of unknownness can be expressed through uncertainty or probabilities. For a valid binary output:

$p(0) + p(1) = 1$

This expression does not require the probabilities to be equal or replace the machine's physical or computational relations.

Probabilities describe possibilities before the result is known. The result obtained in an execution is a specific value, not two superposed values.

The term superposition appears in the title to situate the topic within the series. It is not introduced as a requirement or an internal definition of V. The article does not seek to resolve interpretations of Q.

5. V1 AS A VERIFIED EXAMPLE

In the Deutsch task, V1 and the Q1 reference agree on the bit distinguishing constant and balanced functions.

Constant 0: table 00 → answer 0. Constant 1: table 11 → answer 0. Identity: table 01 → answer 1. Inverter: table 10 → answer 1.

The answer bit satisfies:

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

f_o is the Deutsch oracle function, distinct from the internal function f of the Einstein-VED framework.

The table above presents the inputs of the four checked cases and their answers; it does not describe an advance query of V1's unknown internal states.

This agreement demonstrates a specific task solved by V1 with the same answer as Q1. The example supports the explanation of V relations; it does not replace the central topic with a discussion of Q's internal nature.

6. COMPARING WHAT MACHINES SOLVE

The comparison starts with the same problem, the corresponding inputs and the result each machine must deliver.

In addition to checking answers, time is compared under a common criterion: which operations are included and whether the discussion concerns complexity order or measured duration.

The local V1 analysis establishes O(1) per execution for this fixed-size protocol. The ES_52 documentation in UNIHOLOG and DEMUESTRA/Proyectos/ES_52 is the reference for the scope of the V1/Q1 comparison. In DEMUESTRA, only Spanish .md files will be verified.

Equivalence concerns the tasks, results and costs actually compared. It does not require V to have the same internal structure or interpretation as Q.

Checking coherence or decoherence is external to V's construction and execution, and is performed after measurement, according to EN_52_05.

7. CONCLUSION

Knowing a relation and knowing its values are different things.

V is built through known relations and states that remain unknown under preparation conditions. This lack of knowledge is expressed as uncertainty, without attributing superposition to it.

Collapse establishes a specific result; acquisition makes it possible to know it. V1/Q1 provides the verified Deutsch example. Comparisons aim to establish which problems each construction solves and at what time cost.

8. LOCAL ES_52 REFERENCES

Relations between unknown values: ./../UNIHOLOG/ES_52_Maquina_V_UNIHOLOG.pdf
./datos/ES_52_EnsayoBellV1/resultado_asentado_v1.json
./datos/ES_52_EnsayoBellV1/analisis_complejidad_v1.json
./../UNIHOLOG/ES_52_Resultados_preparacion.pdf
./../DEMUESTRA/Proyectos/ES_52/ES_52_Maquina_V_UNIHOLOG.pdf

Documentary verification in DEMUESTRA: Spanish .md files only.

RELATION TO THE SERIES

Previous: ./pdfs/EN_52_05_ConceptosVcomputacion.pdf

Next: ./pdfs/EN_52_07_ConceptosVcomputacion.pdf

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