the genesis user, selecting a general-purpose format to succinctly describe mathematical operations, and creating a 'genesis publishing tool' to capture that information from the genesis user and to produce a well-formatted genesis block file.

Now let's move further from the two basic concerns — whether to publish and how to publish — and move on to an entirely different question. What we are about to discuss is something that is not defined by the Bitcoin protocol, which has a well-established proof-of-work mechanism that needs no introduction. In the case of blockchain networks with lesser-known proof-of-operations, there lies a possibility that one or more nodes get confused about the proof-of-work operation and this is used as a vulnerability.

To overcome this possibility, Eleutheros allows trustless verification of the proof-of-work operation used by any Eleutheros network. Therefore regardless of how or what a node perceives to be the proof-of-operation, it can be verified. This is implemented through a 256-bit field in the header format ("ChainID") that is calculated by subjecting a pre-determined and openly published 256-bit string (the ID_input) that is part of Eleutheros, and is contained in Eleutheros implementations. Thus, the ChainID of any Elutheros network is the product of subjecting ID_input to the proof-of-work of that network, whatever it might be.

One benefit of this approach is that ChainID can be used to trustlessly to verify whether the proof-of-work operation of the Eleutheros network is what it is believed to be. Any node can independently subject ID_input to whatever the proof-of-work operation is believed to be and confirm the result by comparing it with the ChainID in the block header of that network. If the results match, then the node can be almost certain of their correct assumption of the proof-of-work operation for that blockchain network. If it does not match, then the node operations are suspended and an error message flashes indicating the same.

The only possible exception is ChainID collisions and we aren't too concerned about it, given that it is a 256-bit string subjected to a mathematical operation that is (presumably) a cryptographic OWF. However, it is quite possible that the genesis user may have selected an inferior proof-of-work operation. As Eleutheros does not specify anything about what proof-of-work operation the genesis user must select, this is quite possible.

One way of dealing with that is by duplicating the process (that is, ChainID2 and ID_value2), which greatly reduces the possibility of