

- CARLOS CALEIRO AND JAIME RAMOS, *Classical and intuitionistic propositional logic*.

SQIG-Instituto de Telecomunicações, IST-UTL - Portugal.

*E-mail:* `ccal@math.ist.utl.pt`.

SQIG-Instituto de Telecomunicações, IST-UTL - Portugal.

*E-mail:* `jabr@math.ist.utl.pt`.

It has been pointed out that the fibring methodology for combining logics may sometimes suffer from a problem that has become known as the collapsing problem. In the case of classic and intuitionistic logics, the argument given suggested that there would be no way of combining these logics, *CPL* and *IPL* respectively, in a way that would not collapse the intuitionistic connectives into classical ones. Following this spirit, Andreas Herzig and Luis Fariñas del Cerro have proposed a combined logic  $C + J$  that starts from the expected combined semantic setting, that could be axiomatized, not by adding the axiomatizations of *CPL* and *IPL* together with some interaction rules, but rather by modifying these axioms along with their scope of applicability.

We propose a new logic, inspired by the problems above, encompassing both classical and intuitionistic propositional logics. A preliminary step towards this logic was already taken by considering a combination of the implicative fragments of *CPL* and *IPL*, that was shown to be a conservative extension of both logics. The design of this logic is based on the key idea of keeping at the core of the deductive system the axioms and rules of both logics. As it would be expected, since we are aiming at a complete axiomatization, some extra axioms are needed to express the existing interaction between the two logics. These interaction axioms have to be carefully chosen to guarantee that the two logics do not collapse. The semantics was inspired by the semantic models obtained by cryptofibring. The resulting logic is then proved to be sound and complete and to extend conservatively both classical and intuitionistic propositional logics. Furthermore, it is also shown to be decidable.