HAVE YOUR CAKE AND EAT IT TOO: THE OLD PRINCIPAL PRINCIPLE RECONCILED WITH THE NEW

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OLD AND NEW PRINCIPLE: THE PUTATIVE CONFLICT

Starting point: *Minimal Principle*.

(MP) $Cr(A|<Ch(A)=x>)=x$.

Generalization of MP: *Principal Principle.*

(PP) If E is admissible with respect to $<Ch(A)=x>$, then: $Cr(A|E<Ch(A)=x>)=x$.

Consequence of PP: *Old Principle.* $T=<Ch=f>$.

(OP) If HT is admissible with respect to $<Ch(A)=f(A)>$, then: $Cr(A|HT)=f(A)$.

Modification of OP: *New Principle*.

(NP) $Cr(A|HT)=f(A|HT)$.

GENERAL PRINCIPLE: THE RECONCILIATION

Thesis 1. There is a simple inverse form of NP, namely the *Conditional Principle*:
(CP) $\boldsymbol{Cr(A|B<Ch(A|B)=x>)=x}$. (Entails NP.)

Thesis 2. PP and NP are special cases of the *General Principle*: **(GP) If $\boldsymbol{E}$ is admissible with respect to $\boldsymbol{B<Ch(A|B)=x>}$, then:**
$\boldsymbol{Cr(A|EB<Ch(A|B)=x>)=x}$. (Entails PP&CP.)

Thesis 3. Lewis's objections to PP fail. Even if PP does not apply to cases of undermining, to ordinary cases PP applies *exactly*.

OVERVIEW

Part 1

A VINDICATION OF NP:
IT FOLLOWS FROM CP

Part 2

A RECONCILIATION OF NP AND PP:
THEY FOLLOW FROM GP

Part 3

A VINDICATION OF PP:
IT APPLIES TO ORDINARY CASES

A VINDICATION OF THE NEW PRINCIPLE

How to derive NP from CP

(CP) $Cr(A|B\langle Ch(A|B)=x\rangle)=x$.

Replace B with HT and x with $f(A|HT)$:

$Cr(A|HT\langle Ch(A|HT)=f(A|HT)\rangle)=f(A|HT)$.

But T entails $\langle Ch(A|HT)=f(A|HT)\rangle$. So:

(NP) $Cr(A|HT)=f(A|HT)$.

How the derivation vindicates NP

The derivation addresses two worries about NP:

(1) An inverse form of NP “gets quite messy”.

(2) NP is “user-hostile”.

PART 2

<u>Part 1</u>

A VINDICATION OF NP:
IT FOLLOWS FROM CP

<u>Part 2</u>

**A RECONCILIATION OF NP AND PP:
THEY FOLLOW FROM GP**

<u>Part 3</u>

A VINDICATION OF PP:
IT APPLIES TO ORDINARY CASES

GP ENTAILS BOTH CP (AND THUS NP) AND PP

(GP) ... $Cr(A|EB\langle Ch(A|B)=x\rangle)=x$.

Let I=<either 971 is prime or it is not>.

Why GP entails CP (and thus NP)

Replace in GP E with I:

$Cr(A|IB\langle Ch(A|B)=x\rangle)=x$. So:

(CP) $Cr(A|B\langle Ch(A|B)=x\rangle)=x$.

Why GP entails PP

Replace in GP B with I:

$Cr(A|EI\langle Ch(A|I)=x\rangle)=x$. So:

(PP) ... $Cr(A|E\langle Ch(A)=x\rangle)=x$.

PART 3

<u>Part 1</u>

A VINDICATION OF NP:
IT FOLLOWS FROM CP

<u>Part 2</u>

A RECONCILIATION OF NP AND PP:
THEY FOLLOW FROM GP

<u>Part 3</u>

A VINDICATION OF PP:
IT APPLIES TO ORDINARY CASES

LEWIS'S OBJECTION TO THE PRINCIPAL PRINCIPLE

(OP) If HT admissible wrt $<Ch(A)=f(A)>$, then: $Cr(A|HT)=f(A)$.

(NP) $Cr(A|HT)=f(A|HT)$.

If F *undermining*, $f(F|HT)=0 \neq f(F)>0$. So OP & NP conflict <u>if</u> HT admissible wrt $<Ch(F)=f(F)>$.

<u>**Lewis: *HT* never admissible, so OP vacuous.**</u>

F undermines HT only if FH entails T' incompatible with T, so FHT impossible. So HT reveals information about the future (F won't occur) and is thus inadmissible wrt $<Ch(F)=f(F)>$.

REPLY TO LEWIS'S OBJECTION

- Why is information about the future *never* admissible? Let $A=<\textit{Heads at next toss}>$. $Cr(A|A<Ch(A)=.5>)=1$, not .5. OK, but: $Cr(A|<\textit{Heads at }\mathbf{2nd}\textit{ toss}><Ch(A)=.5>)=.5$.
- What information does $<Ch(A)=.5>$ provide? No *F* will occur if *FH* entails $<Ch(A)^{1}.5>$. If such an *F* has 50% heads, does it follow that the frequency of heads won't be 50%? No: maybe F' will occur, with *also* 50% heads. So $Cr(A|H<Ch(A)=.5>\&\sim F)=.5$.

CONCLUSION

Open questions remain

- Which propositions are admissible?
- How to *justify* chance-credence principles?

Still, we made progress

- Reconciliation of PP and NP: they both follow from GP.
- Proponents of PP need not reject NP: NP follows from the simple and intuitive CP.
- Proponents of NP need not reject PP: PP applies to ordinary cases.