review had been kind, I have to say, and no, we did not change it of course). Another sent me some long and elaborate emails, to illustrate how unjust a reviewer had been towards a collection of essays he had published. When I offered him the opportunity to reply, he declined the invitation as out of the question, but kept bothering us anyway. As editor, you see some of the pettiest and ugliest corners of academia. But then you also encounter wonderful colleagues, ready to volunteer their time, energy and skills for a project, enthusiastically collaborative, or entirely and fully reliable even in the worst moments. And this is the human side of the SWIF that I like to remember. For many years, I used to say that we managed the SWIF as a (very idealised, don't get me wrong) British Island: meritocracy, no favours to friends, responsibility and accountability, no exploitation of younger people, a transparent editorial strategy, peer-reviewing, no position guaranteed (those who failed to deliver were in the end gently asked to leave). I even had a ready text with a long reference to the famous film "The Bridge on the River Kwai", which I used to send to potential volunteers in order to explain the spirit with which we were building the SWIF. For some years, we felt we were making a difference. I'm no longer sure we did, but I certainly learnt a lot from it.

Doxastic synonymy vs. logical equivalence

Say two sentences A and B are doxastically synonymous ($A \sim_d B$) iff it is not possible for someone who understands A and B to believe one of them without believing the other. Consider the following two principles:

> **(Log)** Logically equivalent sentences are co-referential.

> **(Dox)** Doxastically synonymous expressions are co-referential.

(Log) is used as one of the premises in classical variants of the so-called *slingshot arguments* (those are arguments to the effect that all true sentences denote the same object, if sentences denote at all). Recently, Drai (2002: The Slingshot Argument: an Improved Version, *Ratio* (new series), XV(2)) objected to (Log):

> The main objection to this argument is that (Log) is unjustified. Logically equivalent sentences have, by definition, the same truth value in every possible world. But only by begging the question about reference can we claim that they have the same reference in every possible world. The only way to justify [the assumption] that logically equivalent sentences have the same reference, is by presupposing that sentences refer to their truth values, and this presupposition is not independently plausible. (2002: 196)

Drai also put forward a slingshot argument which employs (Dox) instead of (Log) (see "Slingshot arguments: two versions", *The Reasoner*, 3(4)). The reason that Drai gives for preferring (Dox) over (Log) is that (Dox) is supported by the analogy between sentences and names, whereas (Log) is not. Drai, having explained what it means for two sentences to be doxastically synonymous, hasn't really defined how doxastic synonymy of names or other sub-sentential expressions is to be understood, though. There are a few ways these details can be filled in and I won't discuss and compare them all. For instance, we could say that a name α is doxastically synonymous to a name β if and only if it is impossible that someone who understands these names (=grasps their descriptive content) believes that $\alpha \neq \beta$. Now, indeed, it seems plausible that:

> **(SN)** Doxastically synonymous names are co-referential.

Drai argues that (Log) cannot be justified as an extension of a rule applying to names:

> This is because the rule in the old domain must be: logically equivalent expressions have the same reference. But the notion of logical equivalence applies only to sentences and not to sub-sentential expressions such as proper names. That is, it does not apply to expressions in the old domain. . . it is meaningless when applied to sub-sentential expressions. (2002: 198)

Drai also explicitly opts for the descriptive theory of proper names:

> I assume with Frege two basic theses about the reference of names: 1) names have sense, 2) the sense of a name determines its reference [. . .] It is not my aim in this paper to contribute to the century-long controversy about the sense of names. My aim is to show that a valid version of the slingshot argument can be constructed based on a Fregean conception of names. (2002: 198)

Thus, for the sake of argument, I will assume the descriptive theory of proper names. I do believe, however, that even on the direct reference theory of names, difficulties analogous to those discussed in this paper can be raised against Drai's view.

So, the problem seems to be that we cannot meaningfully claim:

> **(LN)** Logically equivalent names have the same denotation.

Given the descriptive theory of proper names in the background, how does one go about justifying the claim that (SN) is meaningless? I'm not sure. Although attempts at solving philosophical problems by saying that some claims are meaningless does have a venerable tradition, no decisive methodology is available. On the other hand, I'm inclined to say that if one can give a fairly intuitive explication of what is meant when it is said that two names are logically equivalent, and the linguistic intuitions of competent language users aren't deeply offended by this proposal, this shows that logical equivalence claims about names are meaningful.

Let's stimulate our intuitions with the following example. Say we have four proper names n_1, n_2, n_3, n_4 (respectively) associated with the following descriptions:

(N1) $(\iota x)(P(x) \rightarrow Q(x))$

(N2) $(\iota x)(P(x) \wedge \neg Q(x))$

(N3) $(\iota x)(\neg Q(x) \rightarrow \neg P(x))$

(N4) $(\iota x)\neg(P(x) \rightarrow Q(x))$

When asked what the pairs: n_1 and n_3, n_2 and n_4 have in common, a plausible answer seems to be that they are, well, in some sense logically equivalent, because the formulae in the scopes of definite description operators in the definite descriptions associated with the names are logically equivalent.

Hence, the following seems like a sensible explication of the notion of logical equivalence of names:

(EN) Names α and β, associated (respectively) with descriptions $(\iota x)\phi(x)$ and $(\iota x)\psi(x)$ are logically equivalent iff

$$\forall_x(\phi(x) = \psi(x))$$

is logically necessary.

(the notion of logical equivalence can be extended to other sub-sentential expressions).

The notion of logical equivalence of names thus defined is different than the notion of doxastic synonymy—there can be logically equivalent names that are not doxastically synonymous. For instance, we can introduce proper names associated (respectively) with descriptions $(\iota x)(x = a \wedge \phi)$, $(\iota x)(x = a \wedge \psi)$ such that ϕ and ψ are logically equivalent, and nevertheless ϕ is not doxastically synonymous to ψ if ϕ and ψ are so complex that one can understand ϕ and ψ without believing they are equivalent.

The above considerations, however, do not show that either (Log) or (Dox) is in fact plausible—the claim is only that if Drai's justification of (Dox) is compelling, so is a parallel justification of (Log).

Drai's slingshot raises also another interesting question that pertains to reference of singular terms and doxastic synonymy of expression containing them. It will be discussed in detail in "Bogus singular terms and substitution *salva denotatione*" (*The Reasoner*, 3(6)).

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Gödel and the Material Conditional

In the lecture notes for his course "The Introduction to Logic" at the University of Notre Dame (P. Cassou-Nogues, 2009: 'Gödel's Introduction to Logic in 1939', *History and Philosophy of Logic*, 30: 69-90) Gödel introduces an interesting addition to the standard reading of the truth table for the propositional connectives. Thus for example, the truth table for the conjunction 'p and q' may be read: true, iff it is consistent with p and q both being t(rue), and is inconsistent with either being f(alse). The distinction between this and the standard reading comes into play with the material conditional.

Gödel writes:

> ... assume that ... we know 'If p then q', but nothing else ....[I]t may certainly happen that p is false, because [...] 'if p then q' says nothing about the truth or falsehood of p. And in this case where p is false, q may be true as well as false, because the assumption 'If p then q' says nothing about what happens to q if p is false, but only if p is true. So we have both possibilities p false, q true; and, p false, q false ...." (p. 82)

That is to say, it is not that if 'if p then q' is true then if p is f, the conditional is true whether q is t or f; but rather, if the conditional is true then it is consistent with p being f whether q is t or f. Thus the explanation for the truth value assignments given to the material conditional in one direction, is transparently clear. Gödel continues: "But we have also vice versa" (Ibid).

However, the rationale for the truth value assignment to the conditional from its truth table that Gödel chooses to give is the traditional one; namely, that the only lines of the truth table relevant to the truth of the conditional are the two where p is t. And if q is t where p is t, the conditional is true; and if q is f where p is t, the conditional is false. But the traditional approach leaves unexplained why is it then that a conditional with a false antecedent is true.

An answer is forthcoming if we apply Gödel's novel approach in this direction as well. For it is hardly disputable that,

(i) If p is consistent with the denial of 'if p then q',