Probabilistic Considerations on
Modal Semantics

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Introduction   Since the nineteenth century probability and modal logic have made very uneasy bedfellows. This is because the two areas seem to offer competing rather than complementary accounts of the necessary/contingent distinction. De Morgan, for example, offers the following remarks concerning modal assertions:

> "Probability is . . . the unknown god whom the schoolmen ignorantly wor-
> shipped when they so dealt with this species of ennunciation, that it was said
> to be beyond human determination whether they most tortured the modals, or
> the modals them." ([2], p. 232)

Another equally pointed polemical salvo is fired by Venn:

> "The logicians have failed, after having had a long and fair trial, to make any-
> thing satisfactory out of this subject of modals by their methods of inquiry and
> treatment . . . It ought, therefore, to be banished entirely from that science, and
> relegated to probability." ([12], p. 296)

Of course, since those days logicians have developed new methods, in particular set-theoretic semantics for the treatment of modals. Many feel that, at last, a satisfactory account can be given. Others continue to think that modal logicians persist with studies which may properly be described as tortuous. It is scarcely surprising that, with the growth of probabilistic semantics, modal logic as an independent subject should once again be hard pressed.

There are two distinct motivations behind recent work in the application of probabilistic semantics to the analysis of modality. The first is a lust for

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