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Incubation and latency time estimation for SARS-CoV-2

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Incubation and latency time estimation for SARV-CoV-2

Vera Hermina Arntzen

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to curiosity

Preface

When the work for the thesis in front of you started, the SARS-CoV-2 pandemic had been ongoing for a couple of months already. Suddenly, the novel coronavirus confronted many of us with incredible losses, whether these were lives, health, the proximity to our loved ones, the fearlessness of living in a world free of pandemics or trust in science. At the same time, the world saw how researchers developed the first mRNA-based vaccines against SARS-CoV-2 and rapid antigen tests, and how many countries reduced transmission levels with public health measures.

Humans are a creative and resilient species, yet viruses are so, stressing the importance of continuously extending our knowledge of pathogens. This thesis focuses on estimating the distribution of two critical quantities of an infectious disease to inform public health measures: incubation and latency time.

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List of Abbreviations

AIC	...	Akaike information criterion (goodness-of-fit, frequentist paradigm)
AIDS	...	acquired immunodeficiency syndrome
BRCA	...	breast (and ovarian) cancer associated (genes)
CI	...	Confidence Interval (uncertainty bounds, frequentist paradigm)
Covid-19	...	coronavirus disease
CRC	...	colorectal cancer
CrI	...	Credible Interval (uncertainty bounds, Bayesian paradigm)
DAG	...	directed acyclic graph
GWAS	...	Genome Wide Association Studies
HIV	...	human immunodeficiency virus
LOO IC	...	leave-one-out information criterion (goodness-of-fit, Bayesian paradigm)
MLE	...	Maximum Likelihood Estimator
MSE	...	mean squared error
NP(MLE)	...	nonparametric Maximum Likelihood Estimator
PCR	...	Polymerase Chain Reaction (laboratory method)
PG(M)	...	penalized Gaussian mixture
PRS	...	polygenic risk score
reBias	...	relative Bias
RNA	...	ribonucleic acid (genetic material)
SARS	...	severe acute respiratory syndrome (lung infection due to SARS-CoV)
SARS-CoV-2	...	severe acute respiratory syndrome coronavirus 2
SE	...	Standard Error
SNP	...	Single Nucleotide Polymorphism (genetic variant)