Australia	holdup/holdout circularity, 36
enhanced damages, 95	probabilistic circularity, 36
lost profits availability, 56	competition law
lost profits, unwitting infringer, 56	anticompetitive effects, 216
	antitrust agencies, 206
bargaining power, 246	behavioral remedies, 233
bargaining power discount, 249	bundling, 224, 225
circularity, 251	complex products, 209, 223, 236
high discount rate, 247	EU competition law, 207
incremental value, division of, 25	exceptionalism, 207
independent creation, 252	excessive pricing, 224
information asymmetries, 253	FRAND licensing, 215, 221
informational disadvantage, 253	future licensing, 218
Nash Bargaining Solution, 246, 248	goals, 204
optimal patent term, 250	holdout, 212
	holdup, 212
Canada	injunctive relief, 212, 213, 233
disgorgement, 75, 81, 83	level discrimination, 226
enhanced damages, 95	monetary remedies, 232
lost profits availability, 56	multi-level licensing, 228
preliminary injunctions, 124	patent acquisition, 231
reasonable royalty factors, 14	patent pools, 228
China	price discrimination, 224
antimonopoly law, 222	privateering, 230
bundling, 225	refusal to supply, 221
calculating damages, 201	SEP holder obligations, 210, 217,
damages, 8	219
disgorgement, 79	tying, 224, 225
enhanced damages, 95	unfair trading conditions, 220
exclusionary abuses, 219	complementarity, 20
FRAND, 187, 201	complex products
litigation cost recovery, 105	complementarity, 20
lost profit awards, 58	incremental value, 19
lost profits availability, 58	
Chinese Patent Act	Daubert
disgorgement, 79	reasonable royalty, 47
circularity, 36	deterrence
discounting, 37	underdeterrence, 9

disgorgement, 72–89	FRAND royalty rates, 167
burden of proof, 88	Georgia-Pacific factors, 162
definition, 50	holdout, 164
deterrence, 73	infringement notification, 178
differential profit method, 82	injunctive relief, 171–90
drawbacks, 80	jurisdictional issues, 184
fixed costs, 85	licensing offer, 179
objective, 50	monetary damages, 161–71
potential benefits, 80	proportionality, 189
unjust enrichment, 72	reasonable royalty calculation, 162
	refusal to license, 166
enhanced damages, 91–104	standard-essential patents, 164
calculating multipliers, 288	top down approach, 168, 170
catch-me-if-you-can problem, 98	Treaty on the Functioning of the European
criminal sanctions, 96	Union, 165
detering beneficial challenges, 100	
effect on patent reading, 101	Georgia-Pacific
EU Enforcement Directive, 94	alternatives, 16
holdout, 98	criticism of, 14
objective recklessness, 92	factors, 14
promoting innovation, 97	fundamental questions, 15
purpose, 97	incremental value, division of, 24
underdetection, 100	post-infringement evidence, 32
willfulness findings, study of, 92	restructuring analysis, 15
entire market value, 42, 44, 64	similar factors, Canada, 14
European Union	similar factors, Germany, 14
disgorgement, 76	similar factors, Japan, 14
enhanced damages, 94	German Patent Act
exclusionary abuses, 219	calculating damages, 77, 191
FRAND, 165, 175	estimating damages, 192
injunctive relief, 126	monetary damages, 191
level discrimination, 227	Germany
litigation cost recovery, 105	disgorgement, 77
lost profits availability, 57	FRAND, implimenter response, 182
ex ante	FRAND, infringement notification, 178
assessing social value, 244	FRAND, licensing offer, 179
contingent ex ante approach, 244	FRAND, monetary damages, 165
ex ante negotiation, 243	FRAND, royalty calculation, 181
incentive to invent, 245	FRAND, time limits, 178, 183
lock-in cost, 245	hypothetical bargain, information available, 28
pure ex ante approach, 244	injunctive relief, 125, 142
sunk costs, 243	level discrimination, 226
	lost profits availability, 57
France	preliminary injunctions, 124
disgorgement, 78	reasonable royalty factors, 14
injunctions, abuse of rights, 142	
lost profits availability, 57	holdout, 284–89
preliminary injunctions, 124	calculating multipliers, 288
FRAND	catch-me-if-you-can problem, 284, 285
abuse of rights, 190	competition law, 212
bottom up approach, 168	definition, 284
comity device, 176	European holdout model, 284
enhanced damages, 163	fee shifting, 287
EU competition law, 176, 183, 188	injunctive relief, 286

holdout (cont.)	contingent ex ante approach, 31
litigation costs, 285	ex post information, 33
transaction cost reforms, 289	multiplier, 37, 38
undercompensatory damages, 282, 288	prior settlements, 39
underdetection, 287	probabilistic discounting, 40
underdetection and enhanced damages, 287	timing of, 28
holdup, 254–71	
apportionment problem, 258	incremental value, 19
assessing excessive royalty, 296	best patented alternative, 241
asymmetric stakes in litigation, 287	comparables, 26
case studies, 295, 296	course of dealing, 26
competition law, 212	custom of the industry, 26
competitive markets, 266	definition, 17
complex products, 258, 261	determining value, 242
definitions, 254	division of, 23
difficulty assessing royalty, 269	economic value, 19
distinguishing royalty stacking, 294	relevant evidence, 26
downstream firms, 266	royalty benchmark, 239
early negotiation, 264	social value, 19, 240
economic literature, 302	value to different users, 242
elasticity of demand, 268	India
evidence of systematic problem, 294	exclusionary abuses, 219
ex ante licensing, 271	lost profits availability, 58
ex ante negotiation, 272	unwitting infringer, 58
ex post royalties, 255	Indian Patent Act
fairness-based norms, 273	lost profits, 58
hindesight bias, 282	injunctions
inelastic demand, 267	abuse of rights, 125, 141
injunctive relief, 268	as a matter of right, 125
liability rule, 279	automatic injunctions, 125
licensing business model, 270	burden on the public, 117
litigation costs, 263	causal nexus, 129
lost profit damages, 269	civil law systems, 141–43
mitigating mechanisms, 271	complex products, 120, 125, 130, 140
network effect appropriation, 256	design around, 124
network effect value, 297	discretionary, 125
overcompensatory jury awards, 282	disproportionality, 124, 152, 153
patent ambush, 297	eBay factors, 127
patent central to product, 263	economic arguments, 118
patentee pays switching costs, 275	empirical factors, 128
probabilistic patents, 259	EU Enforcement Directive, 126, 139
redesign cost, 262	expected harms, 123
repeat bargaining, 273	FRAND, 125, 134
royalty burden of proof, 281	good faith, 138
stay of injunction, 274	harm to enjoined parties, 148
study of, 299	harm to the public, 150
sunk costs holdup, 255, 256	harm to third parties, 149
sunk R&D costs, 265	holdout, 120, 121
switching costs, 261, 275	holdup, 120, 121, 125
undercompensatory damages, 279	incremental worth, 148
unwilling licensor, 275	indirect monetary value, 115
hypothetical bargain, 9, 22–23	irreparable harm, 129
circularity, 36	liability rule, 119
comparability, 34	market exclusivity, 131, 132

matter of right, 141	liability rule
noncompensable harm, 151	bias in damages assessment, 278
ongoing reasonable royalty, 157	definition, 276
oppressive to defendant, 136	injunctions, 119
over-reach, 121	speculative uses, 277
permanent injunction, 127	litigation cost recovery, 104-11
preliminary injunctions, 122, 123	costshifting, study of, 109
property rules, 119	effects of awarding costs, 108
proportionality, 140	EU Enforcement Directive, 104
public interest, 133, 140	exceptionality requirement, 107
rationales, 115	lost profits, 51-72
right to exclude, 115, 116	apportionment, 66
scale of infringement, 147	availability, 52, 55–58
standard-essential patents, 134, 140,	awards, study of, 55
142	compensable lost sales, 64
study of, 129, 131	convoyed sales, 64
switching costs, 118	definition, 50
tailoring, 133, 155	derivative sales, 65
transaction costs, 277	emotional harm, 69
TRIPS Agreement, 116, 117, 143	forseeable lost profits, 54
undue delay, 132, 138	future losses, 69
United Kingdom, 134–41	harm to subsidiaries, 69
United States, 127–34	loss of chance, 71
interest, 111–14	lost economies of scale, 69
Federal Reserve survey rate, 113	mixed awards, 55
restitutionary interest rate award, 113	non-infringing alternatives,
undercompensatory prejudgement interest, 111	60
Italy	objective, 50
injunctions, abuse of rights, 142	opportunity costs, 69
	Panduit factors, 53
Japan	price erosion, 51
abuse of right, 200	reputational damage, 69
disgorgement, 79	standard, United States, 53
enhanced damages, 96	study of, 58
FRAND, 169, 186, 187, 189,	unpatented products, 64
200	unwitting infringer, 56
injunctions, abuse of rights, 142	
Japanese Institute of Inventors and Innovation	Model Patent Jury Instructions, 15
(Hatsumei Kyokai), 12	
litigation cost recovery, 105	Nash Bargaining Solution. See NBS
lost profits, 57, 58	NBS (Nash Bargaining Solution)
reasonable royalty factors, 14	incremental value, division of, 24
standard royalty rate, 12	Netherlands
statutory prejudgment interest rate, 113	injunctions, abuse of rights, 142
study of, 7	willing licensee, 212
Japanese Patent Act	non-infringing alternative, 20
disgorgement, 79	nonpracticing entity. See NPE
FRAND, injunctive relief, 185	NPE (nonpracticing entity), 7
lost profits, 57	, 1
. ///	option effect, 280
Korea	royalty rate errors, 280
FRAND, 185, 189, 199	
injunctions, abuse of rights, 142	patent strength, 254
monetary damages, 199	discounting, 254
• • • • • • • • • • • • • • • • • • • •	5. 71

Poland	anchoring, 43
FRAND, abuse of rights, 183	bottom-up approach, 16
price discrimination, 35, 46	calibration, 49
property rule	comparable licenses, 33
definition, 276	complements, 20
difficulty assessing royalty, 276	contingent ex ante approach, 31
injunctions, 119	entire market value, 42, 44
proposed further research, competition law	established royalty rate, 12
constraints on licensing terms, 238	ex post information, 32, 33
flexibility of antitrust remedies, 238	expert evidence, 47
injunctive relief, 238	Georgia-Pacific factors, 14
level discrimination, 238	incremental value, division of, 23
trade offs with patent law, 237	industry standard rates, 12
use of patent pools, 238	information set, 30
proposed further research, disgorgement	kickers, 48
accounting of profits, 82	overcompensatory, 43
availability, 81	patented non-infringing alternatives, 20
burden of proof, apportionment, 89	principal recommendation, 16–19
proposed further research, enhanced damages	proof of damages, 47
justifiable variations across jurisdictions, 104	restitutionary view, 9
patent reading, 104	restorative view, 8
proposed further research, FRAND	SSPPU, 42, 45
enhanced damages, 171	timing of hypothetical bargain, 28
royalty methodologies, 171	top-down approach, 12
proposed further research, holdup	recommendations, disgorgement
accuracy of damages and injunctive relief, 284	accounting of profits, correct approach, 85
proposed further research, interest	cost savings, 61
rates awarded in U.S. courts, 114	discretion of the court, 81
simple versus compound interest, 114	elect accounting or damages, 88 fixed costs, 86
proposed further research, litigation cost recovery awards under Equal Access to Justice Act, 111	
practical aspects of fee shifting, 111	U.S. design patent approach, 84 recommendations, enhanced damages
reduce cost of litigation over fees, 110	assessed in light of efficacy, 103
settlements in countries with mandatory fee	evaluate deterrent effect, 103
shifting, 111	recommendations, FRAND
proposed further research, lost profits	assessing royalty rates, 171
burden of proof, non-infringing alternatives, 62	balancing equities, 190
idle patents, 66	conditions on injunctive relief, 190
infinger's degree of fault, 59	recommendations, injunctions
loss of chance, 72	against automatic injunctions, 144
moral prejudice, 71	discretionary award, 144
non-infringing alternatives, 64	disproportionate harm, 146
patented next-best alternative, 62	ongoing reasonable royalty, 145, 157, 158
standard presumption, 60	proportionality, 145
proposed further research, reasonable royalty	tailoring, 144, 156
disclosure of license terms, 41	recommendations, interest
incremental value, division of, 25	rates reflecting cost of borrowing, 114
jury preferences re royalty rates, 44	reconsideration of statutory rates, 114
non-infringing alternatives, 22	recommendations, litigation cost recovery
psychology of judges and juries, 46	compensate costs actually incurred, 110
reasonable royalty calibration, 49	more generous costshifting rules, 110
	recommendations, lost profits
reasonable royalty, 6–49	"but-for" causation, 59
analytical approach, 11	defining "profit," 61

preferred measure, 58	reasonable royalty, 198
recognize non-infringing alternatives, 61	Swiss Code of Obligations, 196
recoverable losses, 65	
substitutability of non-infringing alternatives, 62	Taiwan
recommendations, reasonable royalty	enhanced damages, 96
ancillary services or risks taken, 25	TRIPS Agreement
apply comparables and market evidence with	criminal penalties, 96
caution, 41	injunctions, 116, 143
comparables, 34	limitation of remedies, 117
contingent ex ante approach, 31	
entire market value, 46	U.S. Patent Act
expert evidence, 47	disgorgement, design patents, 75
flexible approach to hypothetical bargain, 29	enhanced damages, 91, 92
hypothetical bargain framework, 22	injunctions, 127
incremental value over patented alternative, 21	lost profits, 52
kickers, 49	prejudgement interest presumption, 111
principal recommendation, 16	UK Patent Act
royalties commensurate with value, 19	lost profits availability, 55
using competent evidence, 27	United Kingdom
royalty stacking	bundling, 225, 226
Cournot complements, 290	disgorgement, 78, 81
definition, 289	enhanced damages, availability, 94
distinguishing holdup, 294	FRAND, 169
evidence of systematic problem, 294	hypothetical bargain, 11
input price setting, 292	injunctions, 125,
patent pools, 292, 298	134
redesign costs, 290	lost profits, 55, 56, 61
royalty benchmark, 295	preliminary injunctions, 124
study of, 300	tying, 225
tacit coordination, 293	willing licensing, 212
two-stage quantity setting-model, 293	United States
	apportionment, 66
SDO (standards-development organizations), 160	consent decrees, 234
SEP (standard-essential patent)	damages reports, 6, 7
hypothetical bargain, timing of, 29	disgorgement, availability, 75
non-infringing alternatives, 21	enhanced damages, 288
smallest saleable patent-practicing unit. See	forseeable lost profits, 54
SSPPU	FRAND, 171, 174, 175
Spain	hypothetical bargain, 11, 28
preliminary injunctions, 124	injunctions, 125, 126, 127
SSPPU (smallest saleable patent-practicing unit),	jury bias, 282
42, 45	litigation cost recovery, 106
standard-essential patent. See SEP	lost profit awards, 55
standards-development organizations. See SDO	lost profits, 56, 64
sunk costs	Patent Act, lost profits, 52
circularity, 41	post-judgment interest, 112
holdup, 30	prejudgement interest presumption, 111
hypothetical bargain, timing of, 29	preliminary injunctions, 124
Switzerland	proof of reasonable royalty damages, 47
agreement to contract, 195	royalty rates awarded by juries, 43
calculating damages, 196, 197	unfair competition, 218
effect of FRAND, 196	:lling linguage are
injunctions, abuse of rights, 142	willing licensee, 212