GENNARO CHIERCHIA

Logic in Grammar

Polarity, Free Choice, and Intervention

OXFORD STUDIES IN SEMANTICS AND PRAGMATICS 2

Logic in Grammar

Polarity, Free Choice, and Intervention

GENNARO CHIERCHIA

常州大学图书馆
藏书章

OXFORD
UNIVERSITY PRESS

OXFORD
UNIVERSITY PRESS

Great Clarendon Street, Oxford, OX2 6DP,
United Kingdom

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide. Oxford is a registered trade mark of
Oxford University Press in the UK and in certain other countries

© Gennaro Chierchia 2013

The moral rights of the author have been asserted

First Edition published in 2013

Impression: 1

All rights reserved. No part of this publication may be reproduced, stored in
a retrieval system, or transmitted, in any form or by any means, without the
prior permission in writing of Oxford University Press, or as expressly permitted
by law, by licence or under terms agreed with the appropriate reprographics
rights organization. Enquiries concerning reproduction outside the scope of the
above should be sent to the Rights Department, Oxford University Press, at the
address above

You must not circulate this work in any other form
and you must impose this same condition on any acquirer

British Library Cataloguing in Publication Data
Data available

ISBN 978–0–19–969797–7 (Hbk)
ISBN 978–0–19–969798–4 (Pbk)

As printed and bound by
CPI Group (UK) Ltd, Croydon, CR0 4YY

Logic in Grammar

OXFORD STUDIES IN SEMANTICS AND PRAGMATICS

GENERAL EDITORS

Chris Barker, *New York University,* and Chris Kennedy, *University of Chicago*

PUBLISHED

1 *Definite Descriptions*
Paul Elbourne

2 *Logic in Grammar*
Polarity, Free Choice, and Intervention
Gennaro Chierchia

IN PREPARATION

Weak Island Semantics
Márta Abrusán

Subjectivity and Perspective in Truth-Theoretic Semantics
Paul Lasersohn

A History of Formal Semantics
Barbara Partee

Numerically Qualified Expressions
Christopher Cummins

Measurement and Modality
Daniel Lassiter

此为试读,需要完整PDF请访问: www.ertongbook.com

Acknowledgements

I am grateful to Chris Barker and Chris Kennedy for their editorial guidance. I acknowledge with gratitude three very thorough anonymous reports. Chris Kennedy also gave me extensive and detailed comments that earn him the title of 'honorary fourth referee'. Moreover, since this project has been going on for more than it should have, I got extensive feedback from many different people. I list some of them in what follows (with more specific pointers in the body of the text), even though this is insufficient to express my debt and gratitude toward them: Maria Aloni, Adriana Belletti, Ivano Caponigro, Carlo Cecchetto, Noam Chomsky, Luka Crnič, Veneeta Dayal, Anamaria Fălăuş, Danny Fox, Jon Gajewski, Irene Heim, Angelika Kratzer, Daphne Liao, Giorgio Magri, Clemens Mayr, Andreea Nicolae, Daniele Panizza, Hazel Pearson, Orin Percus, Luigi Rizzi, Jacopo Romoli, Uli Sauerland, Philippe Schlenker, Greg Scontras, Benjamin Spector, and Hedde Zeijlstra. *Gratias vobis ago.* I also have many sizeable intellectual debts to ideas and works in the literature that I hope will be made clear in the course of this book. But I must mention at the outset that much of what I try to do here is to work out an idea that I have seen most clearly articulated in Manfred Krifka's work.

By the time this volume comes out, it will be thirty years since my dissertation, from which I'd like to quote the following passage:

> The person to whom I owe the most is my wife Isa. Since we met, 15 years ago, she always was near me, carrying the burden of staying optimistic during various difficult times and keeping me up, often against myself, with her love. Now we also have little Gabriel to keep us up, especially at night. (Amherst, September 1983)

Gabe has just turned 30; and Tommaso and Matteo, who came later, are young adults, living their challenging and interesting lives. Isa's wise and loving presence throughout was crucial in getting each one of us where we are. I have put her through many more trials since 1983, and those words are more true and heartfelt today than ever; certainly the only lasting legacy of my dissertation.

Cambridge, Mass.
July 8, 2012

Abbreviations

A	Alternative
AA	Anti-additive, Anti-additivity
API	Affective Polarity Item
ATV	Anti-Total Variation
DA	Domain alternative
DE	Downward Entailing
DN	Double Negation
DP	Determiner Phrase
EA	Enriched Assertion
EI	Epistemic Indefinite
EPP	Extended Projection Principle
FC	Free Choice
FCI	Free Choice Item
IE	Innocently Excludable, Innocent Excludability
LF	Logical Form
MC	Modal Containment
MH	Modal Horizon
NC	Negative Concord
NP	Negative Polarity
NPI	Negative Polarity Item
OS	Ordinary Scalar, Ordering Source
PIE	Proto-Indo-European
PP	Positive Polarity
PPI	Positive Polarity Item
PS	Polarity Sensitive, Polarity Sensitivity; Proper Strengthening; Polarity System
PSI	Polarity Sensitive Item
SA	Scalar Assertion
SDE	Strawson Downward Entailing
SE	Scale Economy
SI	Scalar Implicature

SNPI	Strong NPI
UE	Upward Entailing
UG	Universal Grammar
VP	Verb Phrase
WSC	Wide-Scope Constraint

Contents

Acknowledgements ix
Abbreviations x

Introduction 1

1 The Spontaneous Logicality of Language 11
1.1 Polarity Sensitivity 11
1.1.1 Interpretations of *or* 11
1.1.2 An experiment on how scalar terms are interpreted 17
1.1.3 Downward Entailing structures 18
1.1.4 Maximize Strength 23
1.2 Why are there Polarity Sensitive Items? 25
1.2.1 Polarity Sensitive Items and their alternatives 26
1.2.2 Focus 30
1.2.3 Deriving the distribution of *any/ever* 34
1.3 Grammaticality and (un)informativity 42
1.3.1 Analiticity as a basis for ungrammaticality: some examples 43
1.3.2 Sifting G(rammatical)-triviality from L-triviality 49
1.4 Varying views on polarity 54
1.4.1 Types of PSI and their contexts 54
1.4.2 Syntactic licensing 60
1.4.3 Semantic licensing 65
1.4.4 Pragmatic licensing 76
1.5 Concluding remarks 85

2 Scalar Implicatures at the Interface between Pragmatics and Syntax 86
2.1 Introduction: Free Choice disjunction 86
2.2 Empirical properties of Scalar Implicatures 95
2.3 Implicatures as exhaustification 100
2.3.1 The Gricean Theory and the Extended Gricean Theory 101
2.3.2 Silent *only*s and *even*s 109

2.4 Deriving the Free Choice effect 115
2.5 The syntax of exhaustification and its predictions 123
2.5.1 Targeted exhaustification 124
2.5.2 Open issues and loose ends 132
2.6 Concluding remarks 134
Appendix 136

3 *Even* Negative Polarity Items and *Only* Negative Polarity Items 143
3.1 Introduction 143
3.2 Three types of emphatic NPI 147
3.2.1 Minimizers 147
3.2.2 *Even-one/some* NPIs 155
3.2.3 Two potential problem cases 158
3.3 From actual to potential emphasis 163
3.4 Why Negative Polarity Items are (typically) indefinites 169
3.5 Summary and conclusions 179
3.5.1 Open issues 179
3.5.2 Outlook 182
Appendix 185

4 Presuppositionality, Strength, and Concord in Polarity Systems 191
4.1 Introduction 191
4.2 An intervention effect 195
4.2.1 Unwelcome surprise? 195
4.2.2 Intervention: a first stab 198
4.3 Presuppositionality 204
4.4 Strong NPIs 213
4.4.1 The empirical pattern 213
4.4.2 The idea in (mostly) informal terms 217
4.4.3 Open issues 223
4.5 Concord phenomena 227
4.5.1 Limits to the idea that NC is pure agreement 228
4.5.2 NC as an overt manifestation of exhaustification 233
4.6 Summary and conclusions 240
Appendix 241

5 Existential Free Choice 245

5.1 Introduction 245

5.2 The parallelism between FC disjunction and ∃-FCI 248
5.2.1 Parallel behavior 249
5.2.2 Parallel account 252

5.3 Degrees of variation 259
5.3.1 Degrees of negativity 260
5.3.2 Compatibility with different modal bases 263
5.3.3 Degrees of freedom 267

5.4 Total freedom and "anti-negativity" 270
5.4.1 The internal structure of the *numeral N qualsiasi* series 270
5.4.2 The "Proper Strengthening" parameter 274
5.4.3 Numerals and FC morphology 279

5.5 Partial freedom 282
5.5.1 Weak partial variation 282
5.5.2 Strong partial variation 288

5.6 Loose ends: a note on abstract modals 293

5.7 Summary and conclusions 294

Appendix 297

6 Universal Free Choice 302

6.1 Introduction 302

6.2 The source of universality 309

6.3 Deriving the behavior of universal FCIs 315
6.3.1 Subtrigging 317
6.3.2 Generics 323
6.3.3 Imperatives 326
6.3.4 Intermediate summary 328

6.4 More on the relation between existential and universal FC 329
6.4.1 Existential FCIs and low modals 329
6.4.2 The *any*-numeral construction and supplementary *any* 334

6.5 Elements of cross-linguistic variation: Italian universal FC 340
6.5.1 An outline of *qualunque*'s behavior 340
6.5.2 Extending "Proper Strengthening" to ∀-FCIs 345
6.5.3 *Qualunque* in presuppositional DE contexts 347

此为试读,需要完整PDF请访问: www.ertongbook.com

6.6 Some comparisons 350
6.6.1 The role of exhaustification 350
6.6.2 Modals as alternative sensitive operators 356
6.6.3 On the characterization of the modal character of FC *any* 363
6.7 Summary and conclusions 366
Appendix 369

7 Intervention 373
7.1 Introduction 373
7.2 Why implicatures intervene 381
7.2.1 Feature geometry and minimality 382
7.2.2 Modals and minimality 388
7.3 The empirical status of presuppositions in intervention phenomena 394
7.3.1 Presupposition triggers that are partial functions 395
7.3.2 Factives and aspectuals 400
7.4 Factives as scalar triggers 404
7.4.1 Romoli's proposal 404
7.4.2 When and why factives intervene 409
7.5 Intervening presuppositions 415
7.5.1 Focus-sensitive triggers and NPI agreement 415
7.5.2 When the presupposition trigger is partly DE 418
7.6 Conclusions 422
Appendix 426

8 Where We Stand 428
8.1 Introduction 428
8.2 The Negative Polarity part of the system 431
8.3 The Free Choice part of the system 436
8.4 Intervention: a balance 441
8.5 Syntax and logic 444
8.6 Conclusions 447

References 448
Index 459

Introduction

For the purposes of the present work, we can think of language as a structure-building facility (i.e. a computational device that forms complex expressions out of a lexicon), interfaced with the ability to use such structures in drawing inferences (i.e. a natural logic). One of the general goals of this work is to investigate this interface. A well-known example of how syntax and logic interact is constituted by the system of Polarity Sensitive Items (PSIs), a.k.a the Polarity System. Here is a generalization pertaining to it that one is likely to encounter in textbooks and introductory lectures. Focus on the following inferential patterns. If I tell you that every time I ate pizza, I got sick, you won't have any trouble in figuring out that if I ever ate pepperoni pizza, I got sick. This is a "subset inference" (because the set of pepperoni pizza eaters is a subset of the set of pizza eaters). By the same token, if I tell you that over the past month, every time at lunch I ate pepperoni pizza, you'll thereby know that for the last month at lunch I ate pizza. This is a "superset inference". In drawing these inferences we are crucially tapping the semantics of *every*. Structures of the form [Every NP VP (Verb Phrase)] give rise to subset inferences in the NP part (the restriction) and superset inferences in the VP part (the scope).

(1) a. every pizza makes me sick → every pepperoni pizza makes me sick
    b. every time at lunch I eat pepperoni pizza → every time at lunch I eat pizza

Licensing superset inferences is a property that the scope of *every* shares with positive sentences (I ate pepperoni pizza → I ate pizza). Licensing subset inferences is a property the restriction of *every* shares with negative sentences (I didn't eat pizza → I didn't eat pepperoni pizza). A context that licenses subset inferences, like negation or the restriction of *every*, is called 'Downward Entailing' (DE). These

inferential properties are acquired spontaneously as part of figuring out what *every* and negation mean (= how they are used in natural reasoning). Now, it has long been known that languages have classes of items that are somehow sensitive in their distribution to precisely this kind of inferential properties. *Ever* is a case in point:

(2) a. Every [person who **ever** ate pepperoni pizza from that place] [got sick]
b. *Every [person who eats my pepperoni pizza] [will **ever** get sick]
c. Every [person who eats my pepperoni pizza] [won't **ever** get sick]

It looks as though *ever* wants to be in DE environments, like the restriction of *every* (2a) or the scope of negation (2c), and is ungrammatical in non-DE environments, like the scope of *every* (2b). *Ever* is a typical *Negative* Polarity Item (NPI). *Any* works in parallel ways with respect to the structures in (2), but has a broader distribution, to be reviewed shortly. The existence of PSIs has been the object of intense study over the past 30 years. What immediately catches everybody's curiosity is why there should be a class of items that is restricted in its distribution to contexts that share the abstract property of being DE. What aspects of the grammar of *ever* or *any* makes them act that way? This question will be one of our central concerns.

Besides sharing with *ever* the desire to be in negative contexts, *any* also admits a class of uses that *ever* does not tolerate:

(3) a. Pick any cake
b. You may have any of these cakes
c. *ever pick any cake
d. *You may ever have any of these cakes

Those exemplified in (3a,b), where *any* is in the scope of imperatives or modals of possibility, are prototypical Free Choice (FC) uses. Uttering (3a,b) says that you are free to choose the relevant cake. The existence of items like *any* that have both Negative Polarity and Free Choice uses is also very widespread across languages, and understanding why constitutes a second central objective of our investigation. The main question in this connection is why and how Polarity Sensitivity and Free Choice phenomena are related. It is not obvious that items that want to be in DE environments should also often want to be in FC environments.

What makes FC phenomena particularly interesting is that they don't arise just with 'special' items like English *any* (or German *irgendein* or Italian *qualsiasi*), with a restricted distribution and morphemes specifically marked for FC uses. FC effects also arise with ordinary disjunction and, for that matter, plain vanilla indefinites like *some* or the indefinite article *a*.

(4) a. Pick a cake
b. Have wine or beer
c. You may pick a cake
d. You may have wine or beer

In all these cases it seems that I am giving my hearer permission to choose freely. If I say that you may pick a cake and add nothing else, I cannot then protest if you pick the apple pie rather than the cheesecake. As we will see, the Free Choice interpretation of disjunction/plain indefinites in (4) does not readily derive from their lexical semantics: the semantics of the imperative/modal and the way they are put together. This makes them challenging. So in other words, FC phenomena are analytically challenging and affect quite generally a wide class of items, some of them marked with designated morphology, others not so marked. We will argue that FC phenomena have a strong empirical unity (i.e. they are induced in specific environments, and have an identical semantic import across such environments). The natural conjecture is that this is so because they are based on a unitary mechanism. Understanding the unity of FC phenomena is a third key goal of the present inquiry. Some authors have argued that the FC effect with disjunction and plain indefinites is an implicature, rather than an entailment. Implicatures are generally understood to be optional phenomena rooted in conversational dynamics rather than in principles of syntax and compositional semantics. If FC effects across ordinary indefinites and items with a dedicated morphology (*any*/*irgendein*) are empirically uniform, then the FC behavior of the latter should be viewed as an implicature as well.

The notion of implicature and its role in grammar is currently at the center of great controversy. Some researchers, including yours truly, have argued that at least some implicatures (namely the scalar ones) are rooted in the compositional part of the grammatical system, rather than in the post-compositional, conversationally driven part, as Grice had originally proposed. I wish I could stay away from such disputes, for the purposes of investigating the Polarity and Free Choice systems.

And there are indeed parts of what I am going to propose that are independent (or can be easily made independent) of any claim regarding the nature of scalar implicatures and scalar reasoning. But there are also aspects of the investigation of the Polarity System that simply cannot be excised from some investigation of the implicature system. In particular, if FC phenomena are uniform and display points of contact with scalar reasoning, we would simply be depriving ourselves of the possibility of understanding what is going on by excluding what has traditionally been seen as an implicature within our purview. So, some understanding of scalar reasoning and scalar implicatures simply has to be part of our inquiry (a fourth main goal).

Let me illustrate a further way in which implicatures may enter into an analysis of the Polarity System. A phenomenon that appears to be closely tied to polarity is Negative Concord, illustrated by the Italian examples in (5):

(5) a. Nessuno non ha protestato
N-one not has protested
'everybody protested'

b. Non ho detto niente a nessuno
(I) not have said N-thing to N-one
'I haven't said anything to anybody'

In (5a) both *nessuno* and *non* contribute a separate negation to the interpretation of the sentence, which therefore winds up having a "double negation" reading, as per the gloss. However, in (5b) there is only one semantically active negation, again as per the English gloss. So *nessuno* seems to contribute a semantic negation in (5a) but not in (5b), where it looks more like an agreement marker. Items like *nessuno* that display this kind of behavior are called "N-words". There is controversy on whether N-words are NPIs or not. We will side with those who argue that they are. But the point I want to make here is a different one. When N-words are made up of a quantificational element, like *nessuno* = NEG + *a/one*, it is always the logically weakest member of a scale (in this case, *uno* 'a/one') that is recruited. There are no N-words for numerals higher than one (something like NEG-two) or quantifiers like *most* or *every* (something like NEG-all). The question is why. To emphasize the puzzling nature of this restriction, consider that Italian has an N-word composed from the additive particle *anche* 'also', namely *neanche* = NEG-also, combining with a

variety of Noun Phrases, including Number Phrases (as in (6a)); but N-also usually cannot combine with numerals bigger than *one*. Something like (6b) is ungrammatical:

(6) a. Non ho visto neanche un professore di matematica
(I) not have seen N-also a professor of mathematics
'I didn't even see one math professor'
b. *Non ho visto neanche due professori di matematica
(I) not have seen N-also two professors of mathematics

The ban in (6b) is not due to some kind of weird morphosyntactic restriction on *neanche*, but seems to relate to the position of the numeral on the scale, as the following example illustrates:

(7) quel problema non lo risolverebbero neanche due professori di matematica
that problem not it-would solve N-also two math professors
'Not even two math professors would solve that problem'

What makes (7) acceptable is construing *two math professors* as the lowest number of math professors that stands a chance of solving the problem. In other words, if the pragmatically salient scale of numerals is the regular one (viz. <one, two, . . . >), then *neanche* can combine only with *one*. If the pragmatically salient scale has some other granularity (<n, n+α, . . . >), then *neanche* can associate only with the smallest amount on such a scale. The point of this example is to show the robustness of the present generalization on N-words. Non-lowest amounts on a scale cannot be N-words, even when there is a construction which would make that in principle possible like *neanche*. Now there is an extensive and insightful literature on negative concord and N-words; we will incorporate several key ideas stemming from such literature in our proposal on N-words. But there is no sign of a robust explanation of this striking constraint.

Here is my hunch as to why this generalization holds. N-words want to be in a DE (or, in fact, in an even more strongly negative) environment. But when embedded in a DE environment, intermediate quantifiers on a scale tend to generate positive implicatures. Positive implicatures disrupt the DE character of the environment and N-words do not tolerate that. Let me elaborate on the various pieces of this intuition. Consider the dialogue in (8):

此为试读,需要完整PDF请访问: www.ertongbook.com