

Language and Natural Reasoning

LING 792/ PHIL 551, WN 2018, M 1:00 - 3:30 PM, Room: 906 WEISER

Instructor: Guillermo Del Pinal, Weiser Hall 914, delpinal@umich.edu

Office Hours: Weiser 926, Thursdays 3-6 and by appointment.

Prerequisites: Introductory semantics, logic and/or philosophy of language.

Course Outline:

Logicity, triviality and logical form	2 sessions
Grammaticalized implicatures and exhaustification	1 session
Implicatures, contextual blindness, and modularity	2 sessions
Modified numerals and numerical cognition	2 session
Generics, default reasoning, and bias	3 sessions
Epistemic modals and logical vs probabilistic reasoning	2 sessions
Attitude verbs and grammaticalized charity	1 session
Natural logic, language and innateness	1 session

Course Description: In this seminar, we will explore the relation between language and higher-cognition through the lens of one of its most fascinating and increasingly well-understood interfaces: that between language and ‘natural logic’, i.e., the component of the mind that governs reason and inference. Recently, some linguists have argued that key properties of natural languages—e.g., the distributions of determiners, quantificational phrases (Fox 2000, Fox & Hackl 2006, Gajewski 2002, 2009, Chierchia 2006, 2013) and verbs expressing mental attitudes (Abrusan 2015, Fox 2016), certain kinds of pragmatic inferences (Fox 2006, Chierchia 2013), and the intuitive truth-conditions of generic sentences (Leslie 2007, 2008)—can only or best be explained if we hold that the language system has access to an automatic, unconscious system of reasoning. In this seminar, we will examine this work as a gateway to explore foundational issues about the interface between language and reasoning. We will also explore the consequences of the view that language includes a system of unconscious reasoning for the psychology of bias, judgment and decision-making. The questions we will discuss include: (i) Is there such a thing as a ‘natural logic’? (ii) Is this system domain general or does it consist of modular subsystems? (iii) Does the inferential system of language have access to general beliefs/information? (iv) What, if any, components of this system are innate? (v) Is the view that language includes a system of natural reasoning a conservative development of Chomsky’s Minimalist Program? (vi) Is the natural logic used by language normatively acceptable, or does it generate some systematic patterns of biased or incorrect reasoning? (vii) Does this view of language shed new light on alleged biases of reasoning such as the Conjunction Fallacy and the various biases manifested in the use of generic sentences?

Grade Policy: The grade will be based on a presentation and a term paper.

Academic Integrity: Each student in this course is expected to abide by the University of Michigan’s Honor Code.

Accommodations for students with disabilities: In compliance with the University of Michigan policy and equal access laws, I am available to discuss appropriate academic accommodations that may be required for student with disabilities. Students are encouraged to register with Services for Students with Disabilities to verify their eligibility for appropriate accommodations.

Inclusivity statement: Our members represent a rich variety of backgrounds and perspectives. The Linguistics and Philosophy departments are committed to providing an atmosphere for learning that respects diversity. While working together to build this community we ask all members to: (i) share their unique experiences, values and beliefs, (ii) be open to the views of others, (iii) honor the uniqueness of their colleagues, (iv) appreciate the opportunity that we have to learn from each other in this community, (v) value each other's opinions and communicate in a respectful manner, (vi) keep confidential discussions that the community has of a personal (or professional) nature, (vii) use this opportunity together to discuss ways in which we can create an inclusive environment in this course and across the University of Michigan community.

Extra Help: Please do not hesitate to come to my office during office hours or make an appointment to discuss any aspect of the course.

University Attendance Policy: Students are expected to attend classes regularly. A student who incurs an excessive number of absences may be withdrawn from a class at the discretion of the instructor.

Tentative reading schedule: (Last Update: March 29, 2018)

Key for readings: R = Required, O = Optional, B = Background (Introductory)

Week 1-2: Jan 8, 16. Logicality, triviality and logical form

- (R) Gajewski (2002). L-Analyticity and natural language. MS.
- (O) Chierchia, C. (2013). Ch. 1 *Logic in Grammar*, Oxford University Press.
- (O) Del Pinal, G. (2017). The Logicality of language: a new take on triviality, 'ungrammaticality', and logical form. *Noûs* (online first)
- (B) Abrusán, M. (2014). Ch. 6 *Weak Island Semantics*, Oxford University Press.

***Notes:** For some very recent work on triviality and 'ungrammaticality' see Abrusan et al. (2018, ms) 'Grammaticality and Meaning shift' and Chierchia (2018, ms), 'On being trivial: Grammar vs. logic'. There was some interest in the distinction between logical/functional/closed vs. non-logical/non-functional/open-class terms. Some of the papers above superficially touch on that issue. To go deeper into this topic, see von Stechow (1995) 'The formal semantics of grammaticalization', and Sagi (2014) 'Formality in Logic: From logical terms to semantic constraints'. Two other interesting philosophy papers that touch on that, but also discuss broader issues about the relation between language and logic, are Harman (2002), 'The logic of ordinary language' and Glanzberg (2015), 'Logical consequence and natural language'.

Week 3: Jan 29. Grammaticalized implicatures and exhaustification
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- (R) Chierchia et al., (2012). Scalar Implicatures as a grammatical phenomenon. In *Semantics: An International Handbook of Natural Language Meaning. Vol. 3*. Edited by Maienborn, von Stechow & Portner. Mouton de Gruyter. pp. 2297-2331.

- (O) Horn (2005). The border wars: A neo-Gricean Perspective. In K. von Heusinger and K. Turner et al. (eds.), *Where Semantics Meets Pragmatics*, 21-48. Elsevier.
- (O) Chemla and Singh (2014). Remarks on the experimental turn in the study of scalar implicatures, Part I-II. *Language and linguistic compass* 8/9: 373-399.
- (O) Sauerland, U. (2013). Intermediate scalar implicatures. In Salvatore Pistoia-Reda (ed.) *Pragmatics, semantics and the case of scalar implicatures*. Palgrave.
- (B) Simons, M. (2012). Implicature. In *Semantics: An International Handbook of Natural Language Meaning*. Vol. 3. Edited by Maienborn, von Heusinger & Portner. Mouton de Gruyter. pp. 2460-2486.

***Notes:** Focus on Chierchia et al. (2012). For intro/background on implicatures, see Simons (2012), and for a classic neo-Gricean response see Horn (2005). Chemla and Singh (2014) present a ‘state-of-the-art’ opinionated survey on recent empirical work concerning the grammaticalized vs neo-Gricean implicature debate, and I strongly encourage you to read it. Sauerland (2013) might be a bit difficult for those new to this debate; but interesting because it presents a novel argument for the grammaticalized view.

Week 4: Feb 5. Implicatures, contextual blindness, and modularity

- (R) Magri, G. (2009). A theory of individual-level predicates based on blind mandatory implicatures. *Natural language semantics* 17(3), 245-297.
- (O) Magri, G. (2011). Another argument for embedded scalar implicatures based on oddness in downward entailing environments. *Semantics and Pragmatics* 4(6): 1-51.
- (O) Magri, G. (2016). Two puzzles raised by oddness in conjunction. *Journal of Semantics* 33.1: 1-17; 2016

***Notes:** Magri (2009) is a long and difficult paper. Focus mainly on Section 3. For an easier presentation of the basic ideas, re-read Sections 4.1-4.2 of Chierchia et al. (2012). Another relatively accessible presentation of the basic ideas is found in Sections 1-3 of Magri (2011).

Week 5: Feb 12. Implicatures, contextual blindness, and modularity

- (R) Katzir and Singh (2015). Economy of structure and information: Oddness, questions, and answers. in *Proceedings of Sinn und Bedeutung* 19: 302-319.
- (O) Schlenker (2012). Maximize presupposition and Gricean Reasoning. *Natural language semantics* 20: 391- 429.
- (O) Spector (2014). Scalar implicatures, blindness and common knowledge: Comments on Magri (2011). In *Pragmatics, Semantics, and the case for Scalar Implicatures* p.146-169.
- (O) Magri, G. (2017). Blindness, Short-sightedness, and Hirschberg’s contextually ordered alternatives: a reply to Schlenker (2012). In *Linguistic and Psycholinguistic Approaches on Implicatures and Presuppositions*, Pistoia-Reda and Domaneschi (eds.) Palgrave Macmillan

***Notes:** The required reading for this week is quite light: Katzir and Singh (2015). This is a response to Magri (2009, 2011) that tries to account for the oddness data in a way that is compatible with the rejection of blindness. Schlenker (2012) and Spector (2014) also defend accounts that are non-blind, to different degrees, but are optional and we won’t have time to discuss them in detail in class.

Week 6: Feb 19. Density, modified numerals and numerical cognition

- (R) Fox and Hackl (2006). The universal density of measurement. *Linguistics and Philosophy* 29: 537-586.

- (O) Gajewski (MS). Innocent exclusion is not contradiction free.
- (R) Feigenson et al. (2004). Core systems of number. *Trends in cognitive sciences* 8(7): 307-314.
- (R) Leslie et al. (2008). The generative basis of natural number concepts. *Trends in cognitive sciences* 12(6): 213-217.
- (O) Rips, L. et al. (2008). From numerical concepts to concepts of number. In *Behavioral and Brain Sciences* 31: 623-642.

***Notes:** Fox and Hackl (2006) suggest that the ‘dense’ number system accessed by language could be based on the primitive/early systems of numerical cognition. However, there is disagreement amongst cognitive and developmental psychologists about what those are. The systems closest to having the properties postulated by Fox and Hackl are those defended by Feigenson et al (2004). On the other hand, Leslie et al. (2008) and Rips et al. (2008) defend systems of numerical cognition that don’t provide independent evidence for density.

Week 7: Feb 26. Density, modified numerals and numerical cognition

- (O) Kennedy (2015). A “de-Fregean” semantics (and neo-Gricean pragmatics) for modified and unmodified numerals. *Semantics and Pragmatics* 8(10).
- (O) Mayr (2013). Implicatures of modified numerals. In *From Grammar to Meaning: The spontaneous logicality of language* p. 138-171.
- (O) Buccola and Haida (2017). Obligatory irrelevance and the computation of ignorance inferences. MS.

***Notes:** **No official class this week!** Still, I decided to leave the reading materials up so that you have a guide of the debate after Fox and Hackl (2007). Mayr (2013) provides novel data with modified numerals, and argues against density. Buccola and Haida (2017) defend and extend the density account of Fox and Hackl (2007). Kennedy (2015) presents a neo-Gricean account of modified numerals. Let me know if you want to discuss any of this during office hours!

Week 8: March 5. Generics and default reasoning

- (R) Leslie, S. J. (2008). Generics: Cognition and acquisition. *Philosophical Review* 117(1)
- (R) Leslie, S. J. (2012). Generics articulate default generalizations. *Recherches linguistiques de Vincennes* 41: 25-44.
- (R) Cimpian et al. (2010). Generic statements require little evidence for acceptance but have powerful implications. *Cognitive Science* 34(8): 1452-1482.
- (O) Prasada et al. (2013). Conceptual distinctions amongst generics. *Cognition* 126(3): 405-422.
- (O) Sterken, R. K. (2015). Leslie on generics. *Philosophical Studies* 172(9): 2493-2512.

***Notes:** Leslie (2008) will be starting point for our discussions of generics. Leslie (2012) presents a summary of the empirical data in support of her view—highly recommended. Cimpian et al (2010) presents studies which support the view that generics encode biases. This study will play a key role in our discussions of generics and social cognition in Week 10. Sterken (2015) is a critical overview of Leslie (2008).

Week 9: March 12. Generics: theoretical alternatives FLASH TALKS!

- (R) Sterken, R. K. (2017). The meaning of generics. *Philosophy Compass* and/or Section 2 of Leslie and Lerner (2016). Generic generalizations. *Stanford Encyclopedia of Philosophy*.
- (O) Sterken, R. K. (2015). Generics in context. *Philosophers’ Imprint* 15. [**Indexicalist view**]

- (O) Nickel, B. (2008). Generics and the ways of normality. *Linguistics and Philosophy*, 31(6), 629-648. [Normality view]
- (O) Cohen, A. (2012). Generics as modals. *Recherches linguistiques de Vincennes*, 41, 63-82. [Probabilistic view]
- (O) Van Rooij (2017). Generics and typicality: A bounded rationality approach. *Proceedings for Sinn und Bedeutung* [Bounded probabilistic view]

***Notes:** Flash talks week! To get a sense of the theoretical landscape, please read Sterken (2017) and/or Section 2 of Leslie and Lerner (2016). The presenters are: Elise on Cohen (2012), Yourdanis on van Rooij (2017), Catherine on Sterken (2015), and Cameron on Nickel (2008). Key question: How can each of these accounts deal with Leslie's Type A ('characteristic') and Type B ('striking') generics?

Week 10: March 19. Generics, striking properties, and social biases

- (R) Leslie, S. J. (2017). The original sin of cognition. *The Journal of Philosophy* 114(8): 393-421.
- (R) Haslanger (2011). Ideology, generics and common ground. In *Feminist metaphysics*
- (O) Sterken, R. K. (2015). Generics, context, and cognitive bias. *Analytic Philosophy* 56(1): 75-63.
- (O) Tasimi, Gelman, Cimpian and Knobe (2016). Differences in the Evaluation of Generic Statements About Human and Non-Human Categories. *Cognitive Science* 41(7): 10.1111/cogs.12440.

***Notes:** Leslie (2017) is one of the most important papers arguing that striking property generics point to systematic bias. Sterken (2015) and also Saul, J. (2017) are critical responses, whereas Haslanger (2011) accepts the core of Leslie's position. Crucially, note that Tasimi et al. (2017) provide important (and surprising from Leslie's 2017 perspective) that participants don't easily accept striking property generics when they concern human/social kinds!

Week 11: March 26. Epistemic modals, logical vs. probabilistic reasoning

- (R) Kratzer, A. (2012), The notional category of modality. Chapter 2 in Kratzer's *Modals and Conditionals*. Oxford University Press.
- (B) Swanson, E. (2008). Modality in language. *Philosophy Compass* 3(6): 1193-1207.
- (B) Hacquard, V. (2012). Modality. In *Semantics: An International Handbook of Natural Language Meaning*. Vol. 2. Edited by Maienborn, von Stechow & Portner. Mouton de Gruyter. ch. 58.

***Notes:**

Week 12: April 2. Epistemic modals, logical vs. probabilistic reasoning

- (R) Von Stechow and Gillies (2010), Must ... stay ... strong! *Natural Language Semantics* 18: 351-383
- (R) Lassiter (2016). Must, knowledge, and (in) directness. *Natural Language Semantics* 24(2): 117-163.
- (O) Rips (2001). Two kind of reasoning. *Psychological science* 12(2): 129-134.
- (O) Lassiter and Goodman (2015). How many kinds of reasoning? Inference, probability, and natural language semantics. *Cognition* 136: 123-134.

***Notes:**

Week 13: April 9. Attitude verbs and grammaticalized charity

- (R) Abrúsan (2011). Presuppositional and negative islands: a semantic account. *Natural language semantics* 19(3): 257-321.
- (R) Mayr, C. (2018). How logic affects interrogative embedding. MS
- (O) D. Fox
- (O) Evans, G. (1976). Semantic structure and logical form.
- (O) Newmeyer, Nonsyntactic explanations of island constraints.

***Notes:**

Week 14: April 16. Natural logic, language and innateness
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- (R) Piantadosi et al. (2016). The logical primitives of thought: Empirical foundations for compositional cognitive models. *Psychological Review* 126(4): 392-424.
- (O) Crain and Khlentzos, (2010). The logic instinct. *Mind & Language* 25(1): 30-65.
- (O) Katzir and Singh (2013). Constraints on the lexicalization of logical operators. *Linguistics and Philosophy* 36: 1-29

***Notes:**