Theory of Interpretation
ESSLLI 2019 Course

Paul J. E. Dekker
Riga, Latvia

Abstract: The course formally and philosophically elaborates upon the concept of a theory of interpretation by translation. The course provides formal tools for presenting ways in which we can make sense of (that is to say: PRESENT READINGS OF) actually occurring discourse. The readings are proposed to formally render our extensional understanding of actual and, in particular, intentional, discourse.

While most of the proposed formalism is familiar from relatively common semantic architectures, the proposed approach does nevertheless not commit to substantialist, platonist, possibilist, or representationalist assumptions, so neither does it engage in excluding any one of them. Not endulging in non-trivial conceptual and ontological commitments, the architecture will be seen to allow for neat but also novel treatments of indexicals, names, propositional attitudes, and intentional objects. It does not fall victim to any philosophical/logical problems besides the usual practical, empirical, ones.

Description   There exists no consensus about what the proper format of a theory of meaning should be like, and this is quite rightly so. While dedicated branches of linguistics, philosophy and cognitive science benefit from their own choices for particular interpretive architectures, no one can, of course, claim to have adopted the one and only true theory of meaning. And no one should, of course, for obvious philosophical reasons, but also for practical ones.

I want to propose, instead, an architecture of interpretation as translation that is non-exclusive, in that it fails, while it does not exclude, platonist, substantialist, possibilist and/or representationalist assumptions >Since it aims to be ontologically neutral, it reamins compatible with empirical, e.g., distributional approaches. It aims to combine basic insights from—surprisingly, perhaps, to find them together—Frege, Quine, Davidson, Hintikka, and Kamp. The architecture does, formally speaking, not appear to be truly novel, as it employs a "conceptual notation", reminiscent of the logical forms in grammars developed in the Chomsky- and Montague- and Kamp-traditions. My presentation and interpretation, of these structures is, however, significantly different.

Our intentional understanding of extensional discourse is framed in translations in a formal language the interpretation of which is assumed to be familiar. The ensuing readings are given in the convenient format of structures which formally resemble the discourse representation structures of (Kamp 1981; Kamp, Van Genabith & Reyle 2011), but for the fact that they are not conceived of as representations, but as presentations, like the structures and models familiar from cognitive grammar.

Unlike the latter structures, however, our understanding of them is formally regimented by their satisfaction or realization conditions, formally specified in the style of Tarski, in tandem with a natural deduction system in the style of Anderson and Johnstone. The formal language thus has the character of a conceptual notation (Frege's Begriffsschrift), except that its logic and ontology is explicitly ours, and is not aimed at displaying THE logical form, if any such exists, of the discourses to be interpreted.

The approach advocated has two major distinctive characteristics, implicit in our aim to provide for an extensionalist understanding of actual intentional discourse. First, it is actualist. The aim is to provide translations of actually occurring, "live", pieces of discourse, which we, in our words, try to make sense of. Such may suffice to provide an anchor to the world, time and place (if any) of a discourse, and of its translation, as they can be defined as the world, time and place (if any) of ITS occurrence. Second, it is intentionalist. We assume that the reader/user can herself read and understand the translations, by their satisfaction conditions, and thus provide our "access" to propositions and concepts (Fregean thoughts, or "Sinne", so-called), while these thoughts and concepts can be understood to be there only intentionally, through the (intentional) presentation. Unlike Frege, we make no ontological commitments, not to thoughts, propositions, not even to possibilities, for the time being. Neither do we, of course, make any representationalist assumptions.

Plan

Day 1 Exclusive Deduction

- Minimal Propositional Logic
- Deduction Rules
- Applications and Results

Day 2 Indexical Inference

- Indexical Reference
- Dynamic Conjunction
- Dynamic Entailment

Day 3 *Re*-Presentation Theory

- Discourse Presentations
- Names as Declarations
- Live Predications

Day 4 Propositional Attitudes

- Intentional Presentation
- Logical Omniscience
- Relational Attitudes

Day 5 Non-Existent Objects

- Intentional Objects
- Intentional Reification
- Facts and Construals

Course Highlights   The course sets out and motivates an architecture for a theory of interpretation by translation. The main aim is to explain a formalism in which to cast, and understand, our understanding of natural language discourse.

Monday and Tuesday. In order to anticipate, and subsequently motivate, a particular semantics, I will begin the course the first two days by presenting a minimal proof theory for a language with the expressive power of first order predicate logic, but also with the computational benefits of *Discourse Representation Theory*. The logic will be seen to be autonomous in the sense that it is, (0) without the need of quantifier rules, (a) motivated by logical considerations only, not linguistic or semantic ones, (b) it is free from artifacts like variables, (c) it is free from essentialist and existentialist assumptions, and (d) it is genuinely indexical, in that the rules essentially only draw from resources actually given, not postulated. Free from every burden, it is easy to agree upon, besides perhaps, its being awkward to use.

Wednesday. In the third class the formalism is made easier to handle and to conform to the structures from the *DRT*-framework. We here propose a presentationalist understanding of *DRT*'s discourse representational formalism. Like I said, the translations that we aim to obtain in interpretation are assumed to be understood, and they serve to *re*-present (i.e., *present again*) what we take from an actually given piece of discourse, just like diagrams and models are used in various versions of Cognitive Grammar, like that of, e.g., (Langacker 1987, Croft and Cruse 2004, Fauconnier 2010). The relatively familiar specification of the satisfaction-conditions on the *Bedeutung* of these structures, a specification which typically fails in canonical Cognitive Grammars, arguably regiments our understanding, or the *Sinn*, of these structures, and, hence, the mutual understanding of the language.

The actualist intentional understanding of *DRT* is next shown to give a clue the proper interpretation of names and indexical tense. The indexical *DRT* formalism presents individuals by names, and prejects their resolution. Their purely logical role is captured by natural deduction-style declarations, while their discourse role is further captured van der Sandt-style presupposition projection, with, again, an actualist interpretation. (Firm Kripkean intuitions about identity and necessity will show up as analytic, or be argued futile.) The fact that interpretation is anchored to a current discourse also helps us in dealing with the true dynamics of tense, i.e., that of the "moving present". Till today, this phenomenon has, ironically, not very well, or even not at all, been handled in *DRT*, while the present, actualist indexical, approach naturally provides for an intuitive and elegant solution.

Thursday. The representationalist conception of interpretation has severely hampered the *DRT* interpretation of propositional attitude reports. Even the approaches that set out to concentrate on the contents of the reported beliefs, fail to escape from the misconception that ascriptions of beliefs and desires relate to representations in the minds of the people whom the beliefs and desires are ascribed to. Since there is no empirical ground for the postulated concepts and representations, and since the understanding of belief and desire ascriptions neither require some such, I will instead propose a Hintikka/Lewis-style conception of propositional attitude ascriptions, which can be said to describe a world inhabiting which would, in our terminology, make sense of the verbal and non-verbal behavior of the agents that we characterize. Our truth-conditional and intentional interpretation of the sentences that characterize the so-called "contents" of these beliefs, here does what it always does: state, in our terminology, the way the world would be like if we were to make sense of that behavior, that is, if we were in such a world.

Our notion of making life sense of actual assertions, and of reporting what worlds would be like, comes along with a resolution of what has been very badly stated as the problem of

logical omniscience, as well as of the pseudo-problem of deductive closure. Our analysis of deemed problematic situations proceeds in the style of Stalnaker 1987, but does not commit to his formal solution of diagonalization. More substantially, relational (*de re*) beliefs and desires can be seen show up as a manner of construal. While Quine's 1956 construal of these locutions has been widely dismissed for its proliferation of readings, all of whom by now happen to be fully acknowledged in the linguistic and philosophical literature (both in representationalist and in structured meanings approaches), nobody has, it seems, detected, the inconsistency of Quine's approach, an inconsistency which has been occasionally and unwillingly, identified by Kripke 1979. The proper treatment of such locutions, inspired, but not guided, by the work of Aloni 2005, gives us a hand in making sense of relational attitude constructions.

Friday. The types of relational, extensional, construals of beliefs also provides a hand on intentional relational construal, as witnessed, e.g., by the phenomenon of talk about non-existnt objects. How to make sense of talk about things that don't exist, an issue adequately, but obviously not decisively, addressed by Quine in his "On What There Is". Too many linguists and philosophers somehow abuse Quine to support their unwieldly possibilist, fictional, or representational universes, just because talk of that there is. The challenge is to make sense of such talk, without making ontological commitments. From within the presentationalist understanding of *DRT*, a notion of intentional reification provides the answer to this challenge. Like extensional reification, intentional reification is a form of construal, but without empirical impact, building on the insight that the "essence" of an intentional object lies in the fact that it is intended that there is an object. In the *DRT* construal of such attitudes and intentions, like in those of the cognitive grammarians, lies this possibility of reification. The phenomenon will here be explained in a way both philosophically as well as formally satisfying.

Teaching Goals

- Provide students with a philosophical background in a Theory of Interpretation and achieve a level of formal practice with developing it;

- Develop a critical and flexible attitude in thinking about meaning and towards mono-lithic approaches to meaning such as embodied in Montague grammar, cognitive grammar, dynamic semantics, inquisitive semantics, situation semantics, etc.;

- Support in maintaining a reserved, but positive, attitude to speculative metaphysical thinking (substantialist as well as representationalist);

- Present each student with at least one insight that will occupy (inspire or frustrate) her for a substantial period in her future intellectual life.

Background Readings

Day 0 Theory of Interpretation

- Gootlob Frege, 1879, *Begriffsschrift, Eine der arithmetischen nachgebildete Formelsprache des reinen Denkens*, Verlag von Louis Nebert, Halle, Vorwort, and other excerpts.

- Donald Davidson, 1973, "Radical Interpretation", *Dialectica* 27, 313–28; also in: Donald Davidson, 1984, *Inquiries into Truth and Interpretation*, Clarendon, Oxford, excerpt, and other excerpts.

Day 1 Exclusive Deduction

- Paul Dekker, 2019, *Natural Deduction*, MS, ILLC/UvA, Amsterdam.
- Daniel Clemente Laboreo, 2005, *Introduction to Natural Deduction*.
  `https://www.danielclemente.com/logica/dn.en.html`.

Day 2 Indexical Inference

- Nicolaas Govert de Bruijn, 1972, "Lambda Calculus Notation with Nameless Dummies", *Indagationes Mathematicae* 34, pp. 381–392.
  `https://www.sciencedirect.com/science/article/`
  `    pii/1385725872900340/pdf`.
- Bryan Pickel, Brian Rabern, 2016, "The Antinomy of the Variable: a Tarskian Resolution", *The Journal of Philosophy* 113(3), pp. 137–70, introduction.
  `https://philpapers.org/rec/PICTAO-7`.

Day 3 *Re*-Presentation Theory

- Edmund Husserl, 1913, *Logische Untersuchungen*, Max Niemeyer, Halle, beilagen zu den §§ 11 und 20, pp. 421–25. `http://ophen.org/pub-108828;`
- Bart Geurts, David Beaver and Emar Maier, 2015, "Discourse Representation Theory", in: Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*.
  `https://plato.stanford.edu/archives/spr2016/entries/`
  `    discourse-representation-theory`.
- Delia Graff Fara, 2015, " 'Literal' Uses of Proper Names", in Andrea Bianchi (ed.), *On Reference*, Oxford University Press, pp. 251–79.
  `https://pdfs.semanticscholar.org/f070/`
  `    d0f68398964972f4d38340e1a4f08f138316.pdf`.

Day 4 Propositional Attitudes

- Willard Van Orman Quine, 1956, "Quantifiers and Propositional Attitudes", *Journal of Philosophy* 53, pp. 177–187. `http://www.jstor.org/stable/2022451`
- Jaakko Hintikka, 1969, "Semantics for Propositional Attitudes", in: John Whitney Davis, Donald J. Hockney and W.K. Wilson (eds.), *Philosophical Logic*, Reidel, Dordrecht, pp. 21–45. `https://www.researchgate.net/publication/`
  `    239546947_Semantics_for_Propositional_Attitudes`

Day 5 Non-Existent Objects

- Gertrude Elizabeth Margaret Anscombe, 1965, "The Intentionality of Sensation: A Grammatical Feature", in: Ronald J. Butler (ed.) *Analytical Philosophy* Blackwell, Oxford, pp. 158–80.
  `https://philpapers.org/rec/ANSTIO`.
- Friederike Moltmann, 2015, "Quantification with Intentional and with Intensional Verbs", in: Alessandro Torza (ed.) *Quantifiers, Quantifiers and Quantifiers*, Springer, Dordrecht, pp. 141–68.
  `https://link.springer.com/article/10.1023/A:1008245409172`.

Further References

Aloni, Maria 2005. Individual Concepts in Modal Predicate Logic. *Journal of Philosophical Logic* 34, 1–64.

Anderson, John Mueller & Henry W. Johnstone Jr. 1962. *Natural Deduction.* Belmont: Wadsworth.

Croft, William & D. Alan Cruse 2004. *Cognitive Linguistics.* Cambridge: Cambridge University Press.

Davidson, Donald 1974. Thought and Talk. In: Donald Davidson (ed.) *Inquiries into Truth and Interpretation*, Oxford: Clarendon Press. 155–171.

Dekker, Paul 1994. Predicate Logic with Anaphora (seven inch version). In: Lynn Santelmann & Mandy Harvey (eds.) *Proceedings of SALT IV*. DMLL Publications, Cornell University, 79–95.

Dekker, Paul 2012. *Dynamic Semantics.* Berlin: Springer.

Dekker, Paul 2016. Exclusively Indexical Deduction. *Review of Symbolic Logic* 9(3), 603–637.

Dekker, Paul 2017a. Live Meanings. In: Kata Balogh & Wiebke Petersen (eds.) *Bridging Formal and Conceptual Semantics*, Düsseldorf: Düsseldorf University Press. 13–37.

Dekker, Paul 2017b. Logical Conversions. *South American Journal of Logic* .

Fauconnier, Gilles 2010. Mental Spaces. In: Dirk Geeraerts & Hubert Cuykens (eds.) *The Oxford Handbook of Cognitive Linguistics*, Oxford: Oxford University Press. 351–376.

Frege, Gottlob 1892. Über Sinn und Bedeutung. *Zeitschrift für Philosophie und philosophische Kritik* NF 100, 25–50.

Geach, Peter T. 1967. Intentional Identity. *Journal of Philosophy* 64, 627–632.

Heim, Irene 1983. File Change Semantics and the Familiarity Theory of Definiteness. In: Rainer Bäuerle, Christoph Schwarze & Arnim von Stechow (eds.) *Meaning, Use, and Interpretation of Language*, Berlin: de Gruyter. pp. 164–89.

van Inwagen, Peter 2003. Existence, Ontological Commitment, and Fictional Entities. In: Michael Loux & Dean Zimmermann (eds.) *The Oxford Handbook of Metaphysics*, Oxford: Oxford University Press. 131–57.

Kamp, Hans 1981. A Theory of Truth and Semantic Representation. In: Jeroen Groenendijk, Theo Janssen & Martin Stokhof (eds.) *Formal Methods in the Study of Language*, Amsterdam: Mathematical Centre. 277–322. Reprinted in J. Groenendijk, T. Janssen, and M. Stokhof (eds.), 1984, *Truth, Interpretation and Information*, Foris, Dordrecht, pp. 1–41.

Kamp, Hans, Josef Van Genabith & Uwe Reyle 2011. Discourse Representation Theory. In: Dov Gabbay & Franz Guenthner (eds.) *Handbook of Philosophical Logic*, Dordrecht: Reidel, volume 15. 125–394.

Kripke, Saul 1979. A puzzle about belief. In: Avishai Margalit (ed.) *Meaning and Use*, Reidel, Dordrecht. 239–283.

Langacker, Ronald W. 1987. *Foundations of Cognitive Grammar.* Stanford: Stanford University Press.

Lewis, David 1979. Attitudes De Dicto and De Se. *The Philosophical Review* 88(4), 513–45.

Perry, John 1979. The Problem of the Essential Indexical. *Noûs* 13, 3–21.

Stalnaker, Robert 1987. Semantics for Belief. *Philosophical Topics* 15, 177–190.

Tarski, Alfred 1956. The Concept of Truth in Formalized Languages. In: *Logic, Semantics, Metamathematics*, Oxford: Clarendon Press. 152–278. Originally published as "Der Wahrheitsbegriff in der formalisierten Sprachen", 1936, *Studia Philosophica 1*, pp. 261–405.