The questions motivating the project came from the interaction of two areas of research: Kratzer, and Partee with The first research project on Cross

1. Background and central issues

1.1 Questions about quantificational universals and typology

Every natural language has ways of making general statements; we have already looked at generalized quantifiers and unrestricted adverbial quantification (Lecture 5). In recent decades, formal semanticists have addressed empirical questions such as the following:

- What is the range of syntactic, morphological, and lexical means used by languages for the expression of quantificational notions?
- Do languages differ in their expressive power in the field of quantification?
- What are the main typological distinctions among languages with respect to the expression of quantification and other typological characteristics of a language?

The first research project on Cross-Linguistic Quantification was carried out by Bach, Kratzer, and Partee with graduate students and consultants, and led to (Bach et al. 1995). The questions motivating the project came from the interaction of two areas of research:

(i) The semantics of syntactic categories, particularly the semantics of “Noun” and “Verb”, a question requiring a combination of theoretical work and cross-linguistic study.
(ii) The structure and interpretation of expressions of quantification, including DP quantification with Determiners like every, no, most; and by “adverbs of quantification” (Lewis 1975) like always, usually, “floated” quantifiers (“the boys have all left”), and quantifiers expressed by verbal affixes, auxiliary verbs, and various morphological means.

At the intersection of these two areas are important questions, including:

- Does every language use DPs for quantification (as proposed by [Barwise and Cooper 1981])? [No.] Is there any means of expressing quantification which is found universally? [Possibly adverbial quantification; possibly “no”]
- What are the similarities and differences, within and across languages, in the structure and interpretation of quantification expressed by DP’s and quantification expressed with adverbs of quantification and other non-DP means? [A current research topic.]

1.2. Developments in Quantification: Background

1.2.1. Barwise and Cooper’s DP-Quantifier Universal: “every natural language has syntactic constituents called “noun-phrases” [DPs now] whose semantic function is to express generalized quantifiers over the domain of discourse.”

(1) Weaker form: (probably true)
   (i) All languages have DPs;
   (ii) All DPs can be analyzed as generalized quantifiers, i.e. as type (e \to i) \to o).

(2) Stronger form: (false: see more below)
   (i) All languages have essentially quantificational DPs, i.e. DPs which can be analyzed as generalized quantifiers (type (e \to i) \to i), but not reasonably as referential (type e) or predicative (type e \to i).
   (ii) If all DPs can be analyzed uniformly at all in a language, then it will be as generalized quantifiers.


(3) D-quantification (“Det”): every, each, many, most, all, no, the, a, some.
    (4) A-quantification (“Adverbs, Auxiliaries, Affixes, etc.”): usually, always, mostly, often, rarely, never, sometimes, must, may; other examples later.

Donkey-anaphora: (Heim 1982)

(6) (a) Usually, if a man owns a donkey, he beats it.
    (b) Usually, x is a quadric equation, x has two different solutions.

Focus-sensitivity of adverbial quantification: (Rooth 1985, Rooth 1992)

(7) (a) Mary always invites JOHN to the movies.
    (b) Mary always invites John to the MOVIES.

1.2.3. Tripartite Structures as a unifying generalization (Heim 1982, Kamp 1981)

(8) \[ S \]

Operator Restrictor Nuclear Scope

(9) Generalized quantifier: [Det(N)](VP) [i.e., Det + N forms a constituent.]
Relational treatment of Determiners (Aristotle): Det(N,VP)
Adverbial quantifier: ADV (if-clause) (main clause)

See also (Partee 1991b, Partee 1995)
1.2.4. Davidson’s treatment of event sentences and the N-V distinction

Davidson (1967) first proposed that many sentences contain a covert “event argument” as an argument of their main predicates. This approach involves adding events to the ontology of individuals and representing simple event-sentences as involving existential quantification over events; adverbs of quantification, as unselective quantifiers, may bind this event argument. (More in Lecture 9.) One example (with “neo-Davidsonian” modification):

(10) a. Jones buttered the toast in the bathroom.
b. 3e (buttering (e) & Agent (e, Jones) & Patient (e, the toast) & In (e, the bathroom))

A Davidsonian approach permits the following view (see also Langacker 1987, Partee 1991c), on which the differences between D-quantification and A-quantification provide indirect evidence for the nature of the difference in the semantics of Nouns and Verbs:

(ii) DPs denote or indefinitely describe entities; (iii) Sentences denote or indefinitely describe events or situations; (iv) Nouns express predicates of entities; (v) Verbs express predicates of events or situations. (v) D-quantification is quantification over entities. (vi) A-quantification is quantification over events or situations.

(But see Partee (1991a) and others on shiftability between entities and events.)

1.2.5. Typological generalizations: preview. [more below.]

(i) The basic type for DPs cross-linguistically is type e (“referential”). Predicative NPs (type e → t) are also common, but will not be discussed here.

(ii) Not all languages employ D-quantification, and not all languages have DPs which are interpreted as generalized quantifiers (GQs: type e → t). All languages appear to employ some kind(s) of A-quantification.

(iii) Properties which have been suggested to imply the absence of GQs:

(a) Lack of N-V distinction.

(b) Being a Pronominal-argument language: no DPs in argument position.

(c) Lack of a syntactic category DET (determiner).

2. Examples of non-DP Quantification

2.1. American Sign Language (Petronio 1995)

Three different strategies used with different classes of verbs:

2.1.1. Morphological incorporation by operations on the verb (Klima and Bellugi 1979): used only for “agreeing arguments” of “agreement verbs”.

a. allocative indeterminate: [woman]TOP book I-give-allocative_indeterminate I gave some women books (one book to each)

b. allocative determinate: [woman]TOP book I-give-allocative_determinate
I gave some specific women books (one book to each)

c. multiple [multiple action, single episode]: [woman]TOP book I-give-multiple
I gave the all the women books (one each, but single action)

d. exhaustive [distributive to each of a given set]: [woman]TOP book I-give-exhaustive
I gave each woman a book
e. N.B. Link’s plural: [woman@GROUP] TOP book I-give-singular [cf. (Link 1983)]
I gave the group of women a/the book (they shared it)

2.1.2. Classifiers used with spatial verbs

With verbs of motion, a classifier handshape denoting the moving object is incorporated into the verb sign; the classifier can add quantificational information such as sing/plural.

2.1.3. Higher predicates or operators used with “plain verbs”

[student @GROUP]TOP, A-L-L, I like

2.2. Salish (Jelinek 1995) (Matthewson 1998) (Davis 2010)

(1) Jelinek: Coast Salish lacks essentially quantificational DPs. Has no lexical N-V contrast; single large open class of 1st-order Predicates, including predicates meaning two, three, many, few, some, none, and a small closed class of 2nd-order Predicates or Operators, including all, always, also, very, almost.

(2) DPs do not occur in argument position. All arguments are pronominal. (Staats Salish is a “Pro-arg” language.) DPs may be adjoined to a main clause, adding optional further specification of pronominal arguments.

(3) DP, VP, S are defined from functor categories DET, TRANSITIVIZER, AUX.

(4) Jelinek claimed that the absence of lexical N-V contrast predicts the other properties; but the absence of N-V contrast has been refuted since then (Davis and Matthewson 1999, Demirdache and Matthewson 1995).

(5) Comparative logical forms of English and Salish.

English

walk(x)

Salish (Jelinek)

Walk(x), & man(x)

John walks

Walk(x), & man(x)

“A man walks”

[EVERY(man)](Walk)

ALL(y)([man(x, y), (Walk(x, y)])]

“Every man walks”

(6) Later work challenged Jelinek’s claim about Straits Salish, and argued for the existence of generalized quantifiers in that and several other Salish languages as well. It was argued by (Matthewson 1998) that the structure of Salish quantificational phrases is [wQ [zE D NP]]. The quantifiers in Salish are argued not to be “Determiners”, but they do occur in DPs. For a survey of arguments and examples in various Salish languages, see (Davis 2010). On Matthews’s analysis, a strong Q adjoins to an e-type DP to form a generalized quantifier.

(7) In recent work, Davis has argued (Davis 2010) that the apparent strong GQs in Salish are not actually GQs, but have e-type meanings. He shows that a DP translated as all the boys behaves significantly differently from an English universal GQ like every boy; it does not show Strong Crossover effects, does not participate in scope ambiguities, and does not give any other evidence of being Quantified In. Davis makes use of the non-quantificational analysis of all of (Brisson 2003) (see some early suggestions that all is not an ordinary
quantifier in (Partee 1995)): *all the boys and the boys* are quite similar, but the semantics of *all* eliminates the possibility of exceptions, which are tolerated by ordinary *the*. Davis concludes that the Salish languages DO NOT HAVE GENERALIZED QUANTIFIER DPs.

### 2.3. Quantificational prefixes in Slavic (Filip 2005)

In (Partee 1995) I briefly discussed one use of the Czech prefix po-, which can combine with a verb of writing or drawing to give a quantificational effect. “When this prefix is applied to verbs with meanings in the family of writing, drawing, etc., the resulting verb takes as its direct object the optionalexlocative complement X of the original verb (what one writes or draws on), does not allow any overt expression of the original direct object (what is written or drawn), and the meaning is “write all over X” or “cover X with writing”, which is in a certain sense quantificational, but is certainly to be captured at a lexical rather than a syntactic level. Filip (Filip 2005) gives a more detailed study of this prefix as well as Russian cumulative no- and attenuative po-, showing that some Slavic prefixes are better analyzed as quantificational operators rather than simply as perfectivizing prefixes. Filip gives the following example for the Czech po- prefix discussed by Partee.

(1) a. Maloval hesla (na stěnu).
   paint.PAST.3SG slogan.PL.ACC (on wall)
   ‘He painted (the/some) slogans (on the wall).’

   b. PO-maloval stěnu hesly / *hesla na stěnu.
   TOT-paint.PAST.3SG wall.PL.ACC slogan.PL.INST / *slogan.PL.ACC on wall.SG.ACC
   ‘He covered the wall with slogans.’ / *He covered (the/some) slogans on the wall.’

### 2.4. Warlpiri and Gun-djeihmi (Mayali) (Australia)

Discussed in Partee (1995); sources are (Bittner and Hale 1995, Evans 1995) for Warlpiri, (Evans 1995) for Gun-djeihmi (Mayali). These examples illustrate the use of verbal affixes to express various kinds of quantificational or closely related meanings; note that (1) their meanings are often not purely quantificational, and (2) as Evans noted, there is considerable variation in the “scope” of these operators.

(6) G prefix -djarrk, “acting together, all doing the same thing”, subject scope only
   Garri-djarrk-duhubom duruk
   We.pl-together-shootPSTPF dog
   “We all shot the/a dog/dogs” (but not distributive)

(7) W prefix muku- “universal”, absolute scope: object of transitive verb, subject of intransitive; similarly G prefix -mirnde- “many"

(8) Scope over VP or verb plus object or indirect object:
   W yarda- "again/ another"
   snake-DAT AUX-1sg-3lObj yarda-encounter, that-TOP AUX kill.. eat...
   “When I come upon another snake, I kill it and eat it”

   W puta- ‘partitive’
   Ngapa O3ju pute-nga-nya
   water AUX-1sg PART-drink-IMP
   Just drink some (not all) of my water!

(9) W kutu- ‘indiscriminate’: ‘can have scope over object, location, time, manner, but not over subject. With a ditransitive (e.g. kutu-give child-DAT candy) would mean "give candies to children indiscriminately", rather than "give any candies to children" or "give candies to any children" (Evans handout 1989)

Ngari ka yangka kutu-yangka kuwana-kurlangu-el (mimiri-ji)
just PRES that INDIS-enter goanna-GEN- LOC mt.devil-TOP
“It just goes into any goanna’s hole at all (the mountain devil).”

### 3. Related Typological issues

#### 3.1. D-quantification vs. A-quantification

Which, if either, is universal? Partee, Bach, and Kratzer (Partee et al. 1987) conjectured that there may be languages without D-quantification, without DPs as generalized quantifiers. Several of the articles in Bach, Jelinek, Kratzer, & Partee, eds. (1995) confirm this conjecture.

What counts as evidence? If there are no essentially quantificational DPs in a given language, then we conjecture that there are no quantificational DPs. This was suggested in Partee 1995. It also follows from Bittner & Hale’s (1995) constraint on type-shifting (below), which implies that if there are no DPs whose basic type is (e → t) → t, then no DPs will shift into that type.

Bittner and Hale’s constraint: Semantic type-shifting operations must be type-range preserving: that is, they cannot create any new combination of syntactic category with semantic type.

What are the properties of essentially quantificational DPs? Negative characterization: their meanings cannot be captured at types e → t or e. They require a tripartite structure: this generally means that the meaning of their determiner is not symmetrical in its two arguments. Possibly (see Gil (1995), Partee 1995) they are all distributive.

Typical essentially quantificational DPs: every man, almost every man, most men. There are very few other clear cases. Even those cases are not always clear cross-linguistically.

Only proportional quantifiers like every, most, are essentially relational and require tripartite structure. Other quantifiers (some, three, more than five) can have relational interpretations but also can be understood as predicates of sets or of plural individuals.

Languages that appear to lack GQ DPs: e or e → t only, no (e → t) → t DP’s.

Straits Salish (Am. Indian language, NW Pacific Coast): (Davis 2010, Jelinek 1995)
Warlpiri (Australia): Bittner and Hale 1995
Navajo (Am.Ind., SW US) , Lakhota (Am.Ind., N.Central U.S.) (maybe), (Faltz 1995)
Asaruni do Trocará (Tupi-Guarani, northern Brazil): (Vieira 1995)

What kinds of quantification occur in place of D-quantification?

Adverbial quantification appears to be closer to a universal means of quantification than D-quantification, although it will be necessary to more carefully define what is meant by Adverbial quantification (and other subtypes of A-quantification) before its universality can be empirically ascertained, as von Fintel and Matthewson (2008) observe.
3.2. Is the N-V distinction universal?
Jelinek (1995) proposed that the absence of N-V distinction, as in Straits Salish, guarantees that DPs do not occur in argument positions, and that there can be no essentially N-headed quantification. The absence of DPs in argument positions predicts that such a language must be a Pronominal Argument (Pro-arg) language, a property which both she and Baker (1995) argued is sufficient to guarantee the absence of DPs as GQs.

The absence of an N-V distinction in Northwest Coast languages (the main family where it has been argued for) is controversial; Davis (2010) considers it to have been refuted; Bach and Chao (to appear) consider the question still open. Note the distinction between arguing for a distinction in lexical classes and a distinction in the grammar: whether nouns and verbs are lexically distinguished in all languages is controversial, but at a structural level, a distinction between NPs and S’s is not controversial. (Jelinek was clear about that.)

3.3. Pro-arg languages.
Baker (1995) also argues, in a different way from Jelinek, that being a pronominal-argument language guarantees the absence of DPs as GQs. Most of the known examples of languages without DPs as GQs do seem to be pro-arg languages; but Warlpiri is not, so, as Jelinek notes, this is a sufficient but not a necessary condition for the lack of DPs as GQs.

Baker’s argument: In a pronominal-argument language, the actual arguments of the verb are incorporated or cliticized or affixed pronouns or agreement morphemes. Semantically, they are e-type variables. The full DPs that may occur, and “look like” arguments, are really adjoined, very roughly similar to English right-adjunction.

(28) wa’-t-há-ya’k-e ne[lo] thikh Sak raó-’share’
fact-dup-1sl-break-punc NE that Sak MnP-knife
He broke that knife of Sak’s. (Coreference OK in Mohawk)

Compare English:
*Sak’s knife he broke. (Plain topicalization)
Sak’s knife, he, broke it. (Left dislocation)
John, he really hates her, that teacher.

Baker argues that the adjoined DPs are not in a possible configuration to permit true binding of a variable by a quantified DP. Hence there is no role for a GQ to play in a pro-arg language where the only place for DPs is as adjuncts.

The exception that proves the rule: In Mohawk, the interrogative quantifier does move to S-peripheral position, where it can bind a variable in argument position. This is the only quantifier-like word that is able to bind an argument pronoun in Mohawk; and it helps to show that the problem is in the “location” of Mohawk DPs, not in the bindability of the argument pronouns.

3.4. Is the Det category universal?
Bittner and Hale (1995) identify Warlpiri as a language which lacks GQs; Walpripi is not a pro-arg language and it does have a clear N-V distinction. But possibly unlike Salish and some of the other languages without GQs, it does not have any category of Determiner. If there are no basic Dets, then there are no elements in the language whose basic type could be the type that the quantificational Dets have in English: functions from Noun type to GQ type, i.e. (e →t) →e((e →t) →t). And by their proposed constraint, if nothing has that type as its basic type, then nothing can shift into that type. And similarly, if there are no basic GQs, no DP is going to shift into a GQ reading. (A basic GQ would have to either be Det plus NP with quantificational Det, or a lexical basic GQ like everything, which also does not exist in Warlpiri). More on Bittner and Hale (1995) in the next section.

4. Theories and Typologies of Bare DPs/NPs
What is the syntactic and semantic structure of “bare NPs/DPs”? (Let’s call them BNPs for short.) Several possibilities, maybe different answers in different cases:

(a) A BNP is just a DP with a null (phonologically empty) D.

(b) A BNP is an NP that can “act like” a DP without any D. (To discuss: what this might mean.) On some theories it could make a difference whether there is a DP node.


Bittner and Hale (1995) give interesting semantic arguments for the claim that Warlpiri (an Australian language) lacks the category of Determiner altogether, whereas Polish and Greenlandic Eskimo, which have determiners, have “null” articles. They argue that this difference can explain why the Warlpiri word for many, a noun, has a shifted interpretation as “all”, while in languages with determiners such a shift will generally be impossible.

4.1.1. Some background about Warlpiri:
Warlpiri has just two major lexical categories, N and V, with clearcut morphological distinctions between them. Verbs are generally ‘active’; almost all stative predicates are in the N class. Warlpiri nominals can function as the main predicate of a sentence and as secondary predicates, and can also function as arguments of the main predicate. When a nominal serves as an argument, it triggers pronominal agreement (person and number) with the auxiliary. When the same nominal functions as a secondary predicate, it will show adjective-like agreement, in number and case, with the argument it is construed with.
Examples of Warlpiri nouns are given in (1), from Bittner and Hale 1995, "arrayed in an approximate scale, ... with group (a) most likely to express arguments of the main predicate, and group (f) restricted to serve as the main predicate or a secondary predicate.

(a) Pronouns, demonstratives, and other indexicals: ngaju ‘I’, nyampu ‘this’, jinkakumarrarni ‘all of it, all of them’
(b) Nouns: Jakamarra, Nakamarra, ...
(c) Common nouns: karnta ‘woman’, ngarka ‘man’, miyi ‘vegetable food’
(d) Expressions of quality or cardinality: wiri ‘big’, nyuruu ‘small’, panu ‘many’
(e) Expressions of psychological states: pina ‘knowledgeable about DAT’, ngampurpa ‘wanting DAT’
(f) Locatives and directional: külüurr ‘in the middle’, yatjarra ‘north’

Following the lines of Partee and Rooth (1983), Partee (1987), they propose that Warlpiri nominals may be used either as arguments (type e) or as predicates (type &lt;e,p&gt;), according to the demands of the construction it occurs in. For nouns in classes (a)-(b) above, they take the basic type to be type e, whereas for classes (c)-(f), they take the basic type to be &lt;e,p&gt;.

The more marked uses of a given class of nominals are assumed require the derivation of an alternative meaning from the basic meaning by means of a suitable type-shifting operator.

Bittner and Hale illustrate a number of nominal constructions, both continuous and discontinuous, some ambiguous and some unambiguous. They argue that all of the nominals above can occur in all of these constructions subject only to ‘semantic coherence’. They arrive at the conclusion that all of the elements listed above, including the demonstratives and quantificational words in group (a), are indeed nouns in Warlpiri, and pattern together with other nouns rather than forming any separate class of determiners. They behave syntactically like other Ns in Warlpiri, and have no fixed position within the nominal phrase (unlike auxiliary verbs, which have a fixed ‘second position’ within otherwise free word order.)

With this background, they discuss some initially very surprising data and offer an explanation for it based on the assumption that Warlpiri, unlike Polish and Eskimo, has no syntactic/semantic category of determiners.

4.1.2. The semantics of Warlpiri nominals, and an ambiguity with cardinals.
Warlpiri nominals of classes (c)-(d) are typically ambiguous between a weak (indefinite) and a strong (definite) reading; the choice may be influenced by linear order, topicality, etc., in ways familiar from Slavic languages.

(5) Ngarka-ngku ka-∅-∅-rla karnta-ku ngapa yi-nyi mata-ku.
Man-Eng. PRES-3s-3s-DM3 water-3s give-NPST tired-3s
(i) ‘A/the man is giving some/the water to a/the tired woman.’
(ii) ‘A/the man is giving some/the water to the woman, who is tired.’

‘Since Warlpiri has no determiners, we hypothesize that the source of definiteness and indefiniteness in this language is some semantic mechanism still to be discovered.’ (p. 89). In this they take Warlpiri to differ from languages like the Slavic languages ‘which have an otherwise full determiner system but in which the definite and indefinite articles are non-overt.’ (p.90)

The surprising data: panu, which means many, can also mean all. And the same question word can ask How many or which ones. (See Hale’s interesting and humble description of his discovery of these facts after years of thinking he knew the meanings of those words.)

13. Panu-rna ma-ni
   PANU-PRS-1sg take-NPST
   (i) I’ll take a lot (many) of them
   (ii) I’ll take all of them

4.1.3. Assimilating Panu to other nominals.
(18) Kurdu ka-rna-∅ nyo-nyi.
   chilids PRS-1s-3s see-NPST
   (i) I see a child. [weak]
   (ii) I see the child. [strong]
   (iii) I see him/her, who is a child. [predicative]

Nominal expressions in the ‘middle range’ ((c)-(d)) generally have three kinds of possible readings: “weak”, “strong”, and “predicative”. (In (18), the third possibility is as a secondary predicate of a non-overt object argument.) Bare cardinality nominals like panu have the same range of readings and can be explained as involving the same type-shifting mechanisms as the ordinary middle-range nouns.

(19) Panu ka-rna-panu nyo-nyi.
   manys PRS-1s-3s see-NPST
   (i) I see a large group (of them). [weak]
   (ii) I see the large group (of them). [strong]
   (iii) I see them, who are a large group. [predicative]

Other bare cardinality nominals, like jinta ‘one’ and jirrima ‘two’, exhibit the same three-way ambiguity.

4.1.4. Contrasting Warlpiri and Polish.
The ambiguity of the Warlpiri cardinal expressions contrasts with the situation in ‘null-determiner’ languages like Polish (and Eskimo).

(29) Warlpiri
   Jinta-∅-rna-∅ yarda-nya-nyu kardu.
   one-ABS PRF-1s-3s AGAIN-see-PST child-ABSs
   (i) I again saw a child. [weak]
   (ii) I saw the child again. [strong]

(30) Polish
   Znowu zobaczy jedno dziecko.
   again see-PST-1s.masc one-ACC child-ACC
   (i) I again saw a child. [weak]
   (ii) I saw the child again. [strong]

In Polish, as in Russian, the overt numeral expression in (30) has no ‘definite’ reading; for a definite reading, one would have to omit the numeral or replace it with a demonstrative.

Summary of the contrast: ‘Bare common nouns in Warlpiri, as well as Polish and Eskimo, behave like bare common nouns in other languages without articles, i.e. are ambiguous between strong, definite, and weak, indefinite, readings. In Warlpiri, the ambiguity extends to
the expressions of cardinality, whereas in Polish and Eskimo, the strong reading is systematically missing for this class of expressions.' (p. 101)

4.1.5. Explanation in terms of type shifting.

(1) Assumptions: the cardinality expressions in Warlpiri are basically Ns, whereas in Polish, Eskimo, and English, the cardinality expressions are adjectives, determiners, or other categories which do not include proper nouns or other expressions whose basic semantic type is type e.

‘Suppose that in languages without articles, the source of definite readings is a type-shifting operator whose semantic effect is equivalent to that of the definite article.’ (pp 101-102) (Cf. the iota operator above; Bittner and Hale assume Link’s (1983) variable binding operator α.)

(2) Bittner and Hale further propose the following very natural constraint on type-shifting operations:

Type-shifting operations must be type range-preserving.

More precisely: In order for a type shifting operation to shift an element of syntactic category A into a meaning of semantic type B in a given language, there must be expressions of category A in that language whose basic meaning is of type B. I.e. type-shifting cannot create any new category-type correspondences.

(3) Consequence:

(a) Because of the existence of proper nouns, which are Ns with basic type e, common nouns in both Warlpiri and Polish can undergo the “Definite” type-shift which gives them an e-type reading. [In Polish this reading could also be attributed to a null definite article,]

(b) Because cardinal expressions like panu and jinta are Ns in Warlpiri, they can undergo the same shift and can end up with definite (strong) readings. But cardinals in Polish, Russian, and English belong to a category which does not have any elements whose basic meanings are of type e, and hence in those languages they cannot shift into any e-type reading.

Note: This explanation does not really provide an argument that the Slavic languages must have null definite and indefinite articles. What is argued for is that Slavic languages do have a category D distinct from the category N, whereas Warlpiri does not.

4.2. Krifka (1995): All simple nouns are of type e and denote kinds.

Krifka (1995) and Chierchia (1998) go farther in proposing basic ontological differences in the interpretation of nouns in different languages as names of ’kinds’ or as predicates. Both Krifka and Chierchia try to lay the basis for a distinct interpretation among languages like Chinese which lack grammatical number and the count/mass distinction, and in which BNPs are common, and languages like the Slavic, Germanic and Romance languages, with further distinctions among them concerning the distribution and meaning of BNPs and “null” Dets.

Krifka’s proposal.1 All simple nouns across languages, mass or count, are of type e.

Simple nouns are names of kinds, and are of type e. This type remains unchanged throughout uses involving classifiers; with the indefinite, predicative use an operator (a ’realization operator’ RT) is required to type-shift the type e noun into a type <e,t> predicate.

Under this proposal, a null determiner is posited for the interpretation of plurals in English: Krifka attributes the fact that English bare plural (count) nouns typically receive an indefinite reading due to their affinity to predicates, and a null determiner is therefore required to derive the definite, kind-referring reading. No such null categories are posited in his analysis of Chinese, however, and we can thereby infer that the presence of null determiners go hand in hand with syntactic processes (such as English pluralization) that might potentially result in a semantic type-shifting operation (from type e to <e,t>).

Because in most cases the denotation of the common noun percolates intact to its maximal projection,2 so does the type of that terminal element. Common nouns are of type e, and so are their maximal projections, except for the case of nominal projections in predicative positions, which are of type <e,t> (shifted via the operator RT described in the first paragraph).


[Note: Sections 4.3, 4.4, and 4.5 are condensed from longer versions in last year’s handout for Lectures 8&9, which included more on mass/count and number. See https://udrive.oit.umass.edu/partee/RGGU%202010%20materials/RGGU108.pdf.]

Nouns appear to play a double role both as predicates - when restrictors of quantifiers and in predicate position - and as arguments - when devices for kind reference. Chierchia challenges the ‘canonical’ view that NPs are always of type <e,t> and only DPs can be of type e. This view goes back to classical Montague grammar and is also maintained by Longobardi, who claims that NP is uniformly type <e,t>, DP of type e or <e,t>, and only DPs can be arguments. On Longobardi’s view bare NPs in argument positions are really DPs, either by virtue of existence of a null D or by raising of N to D (e.g. for proper nouns.)

Chierchia proposes that the features [+pred, +arg] and [+pred, +arg] constrain way N and NP are mapped into their interpretations. A value “+α” means that N can be mapped onto things of type α, a value “+α” that they cannot. He assumes that there will not be any languages that take the [-arg, -pred] option, but that all three of the other combinations are possible. The game is now to explore what characteristics languages with those properties would be expected to have. There are many intermediate arguments and background assumptions not presented here.

(100) The Nominal Mapping Parameter (NMP): N ↔ [# pred, #arg]

Mass-only languages:

[-pred, [+arg]] : every (lexical) noun is mass: Chinese

Mass/count languages:

[+pred, [+arg]] : bare arguments allowed. (i) no article: Slavic

(ii) articles: German

[+pred, [-arg]] : bare arguments disallowed. (i) no null “SHIFT” article: French

(ii) null “SHIFT” article: Italian

No language has nouns that are [-pred, -arg]; those N’s couldn’t be used at all.

4.3.1. Type Shifting

Chierchia gives a basic pair of type-shifting operators that map between properties and kinds (these were shown in the “Partee triangle” in Lecture 6, but not discussed then):

1 Given Krifka’s position on null determiners, the neutral term maximal projection is chosen over either of the terms NP or DP.

2
(i) all nouns have general number (in Chierchia’s terms, all nouns are mass nouns) (ii) obligatory use of numeral classifiers (iii) absence of plural marking.

Languages like English lack all three of those characteristics. But as has been pointed out in the literature (e.g. Carson 2000, Chung 2000, Schmitt and Munn 1999)), and as Rullmann and You’s work also shows, these three characteristics do not always go together, and the dichotomy is too rigid empirically.

**Rullmann and You’s proposed parameter:**

The main typological distinction is between languages in which morphologically unmarked nouns have general number and languages in which unmarked (count) nouns are semantically singular.

“Classifier languages make up only a proper subset of the general-number type. Plural markers can in principle appear in either type of language, but in a language in which the unmarked noun has general number plural marking will be optional.

According to Chierchia, in languages like Chinese, nouns can be used as arguments because they denote kinds, whereas in languages like English count nouns denote sets of atomic entities. If our alternative line of thinking is correct, the crucial parameter does not involve kind reference, but number.” (R&Y, end of Section 3.)

**REFERENCES**


