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Edited by / Herausgegeben von / Edité par
Martin Haspelmath · Ekkehard König
Wulf Oesterreicher · Wolfgang Raible

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- Bertil Tikkanen, Helsinki
(Finland)

84. Reference maintenance in discourse

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1. Preliminaries

When people talk, they constantly mention various specific entities, such as:

- (1) (i) participants of the current speech act (expressions such as *I, you*)
- (ii) other persons (*Mary, she*)
- (iii) living beings and objects (*the cat, that car, my hand, the cloud*)
- (iv) abstract notions conceptualized as objects (*the Great French Revolution, my salary*)
- (v) locations in space (*right here, on the Red Square*)
- (vi) moments in time (*tonight, on New Year's eve*)

Entities of category (i) constitute a very special type, due to their centrality in linguistic communication. Linguistic elements coding that kind of entities are among those called **deictics** (→ Art. 44 and 56). Entities of categories (v) and (vi) are also frequently deictic

since human orientation in space and time is egocentric: locations and times are understood in relation to where and when the speaker (and/or the addressee) currently is. Some notes on (v) and (vi) will be made in § 9. below. This article (§§ 2.–8.) is primarily concerned with the entities of categories (ii), (iii), with occasional mentions of category (iv). It should be noted that reference to entities (ii), (iii) can also be deictic. For example, if a police officer says to his subordinate, gesturally pointing at a suspect, *Get him*, such usage of the pronoun should be considered deictic (non-anaphoric; see below). On the difference between deictic and anaphoric use of pronouns see, e. g., Lyons (1977: 673) and Ehlich (1982).

Mentioning entities is traditionally called **referring**, or **reference**. The entity being referred to is called **referent**. Sometimes referents are said to be entities in real world, but that approach creates many unnecessary problems with imaginary entities, like unicorns. So it is less problematic to understand referents as entities in the language users' minds. Referents are mentioned by means of various kinds of **referential expressions**. Grammatically, referential expressions are **nominal elements** – most typically, **noun phrases** (NPs), such as:

- (2) (a) proper names
- (b) common nouns (with or without modifiers), or descriptions
- (c) pronouns
- (d) zero forms

A cover term for proper names and common nouns (with or without modifiers) is **full noun**

phrase (full NP). Besides the types of specific referents, listed above, there are various other kinds of entities that can be spoken of in human discourse, e. g. generics; the corresponding NPs are generally called **non-referential** (cf. Art. 39). These will not be a matter of discussion in the present article.

A fundamental and universal property of human discourse is that one and the same referent recurs as the discourse unfolds. Say, if we have a tale about Hansel and Gretel, there will be multiple mentions of these referents in the tale. Dozens of other referents will be mentioned more than once, too. (Usually there are some specific referents that do not recur.)

Evidently, when the speaker needs to mention referent X in a **non-introductory** way, s/he should be able to let the addressee know that referent X is identical to the one that is already known to the addressee. Consider the following simple constructed example.

- (3) *John_i was sitting at the table. He_i was daydreaming about the weekend.*

How does the speaker ensure that the pronoun *he* in the second sentence is understood as referring to the referent 'John'? However straightforward this process may seem at first blush, it is in fact far from trivial and involves many complex aspects. There are many different ways to talk about this phenomenon, relying on different metaphors; they are discussed in § 2.

2. Terminology

Under the view of text as a static object, linguists frequently say that the pronoun *he* in (3) is **coreferential** with *John* of the first sentence. Sometimes one talks about **coindexation**; note that the two NPs in (3) have the same subscript index "i".

Frequently it is said that *he* in (3) is an **anaphoric pronoun**, or an **anaphor** (in a non-generative-grammar usage of the term). The notion of **anaphora** (< Greek 'carrying back') suggests that the pronoun *he* refers back to the point in the preceding stretch of discourse where the clue to its reference is found. That clue is an NP with a presumably clearer and more straightforward reference. Such an NP is called the **antecedent** of the anaphoric pronoun. The notion of anaphora implicitly presupposes that the addressee makes a search procedure in the overt form of the preceding discourse, in order to find the antecedent and

the referent. Such a hypothesis has not been proved and some psycholinguists have attempted to disprove it. The term "anaphora" is ambiguous insofar as it may be confined to pronouns and zero expressions only, or it may be applied to all forms of referent mention (in the latter case one would distinguish pronominal anaphora, zero anaphora, and full NP anaphora). For a useful overview of approaches to anaphora see Huang 2000.

According to a more dynamic view of discourse, the addressee does not simply search for an antecedent in the overt text structure when s/he faces an anaphoric pronoun, but rather keeps track of the referents mentioned in the discourse, and thus identifies the referents of incoming NPs. In this framework, linguists often speak about **referent-tracking** (see e. g. Foley & Van Valin 1984: Ch. 7).

Finally, there can be a dynamic view adopting not the addressee's but the speaker's perspective. Here what is central is not the addressee's tracking procedures but the speaker's strategies ensuring that referent identity is properly expressed. Under this approach, one sometimes talks about **maintenance of reference**, or **reference maintenance** (Marslen-Wilson & Levy & Tyler 1982). In this article we will stick to the speaker-oriented approach, since it is the speaker who is responsible for the shape of discourse. Often we will be using a less metaphorical terminology and talk about **referential choice** (following e. g. Clancy 1980) in discourse. When the speaker needs to mention a referent, s/he can choose among the repertoire of language-specific devices. For example, in English this repertoire comprises, in the first place, full NPs and independent pronouns. A number of other terms for the process of referent mentioning have been used in the literature such as **management of reference** (Tomlin & Pu 1991).

It should be stressed that referential choice is among the most fundamental skills of language users. About every third word in discourse (sometimes even more than that) is dependent on the process of referential choice. Clearly, linguistic communication would never be possible without this faculty. An account of referential devices is an essential part of a full description of any language, as necessary as the inventory of tenses or the rules of relative clause formation. Authors of descriptive grammars have recently started to acknowledge this fact, and sections on referential devices, as well as other discourse phe-

nomena, are becoming rightful constituents of language descriptions; for a recent example see A. E. Kibrik (ed.) 1998. For a field-work-oriented methodology designed for describing referential devices of a language, see Levinsohn 1994.

3. Two types of linguistic devices employed in reference maintenance

When referring, speakers concurrently use two fundamental types of linguistic devices which are frequently confused but need to be distinguished. The first kind of devices, here called **primary referential devices**, are nominal elements themselves; they are the units that perform reference per se. Primary referential devices will be discussed in § 4. It will be argued that the choice between various referential devices is governed by the degree of the referent's activation in the working memory. Consider the following example where there are two referents mentioned by pronouns in the same clause.

- (4) *John_i was sitting at the table. Suddenly a girl_j approached him_i...*
 (a) *He_i yelled at her_j.*
 (b) *She_j yelled at him_i.*

In both (4a) and (4b) there is a pair of referents playing the roles of participants in a two-place situation; in each case it is quite clear which referent plays which role. Therefore, in this particular context the conditions for using both pronouns are satisfied. Now consider another example, minimally different from (4).

- (5) *John_i was sitting at the table. Suddenly a boy_j approached him_i...*
 (a) *?He_i yelled at him_j.*
 (b) *?He_j yelled at him_i.*

Here (5a–b) appears unintelligible. Apparently the only difference from (4) is that both referents are of the same gender and the pronouns that can be used to refer to them are identical. Thus, the category of gender is an intrinsic component of referential choice in English. For example, the gender difference makes it possible to use pronouns in (4), while a better way to express the contents of (5a) would be the use of a full NP:

- (5'a) *John_i yelled at him_j*

Various linguistic devices which, like English gender, help to discriminate between two or more concurrently activated referents, are

here called **subsidiary referential devices**. They do not perform reference themselves but are essential for the process of referential choice. Subsidiary devices will be considered in § 5.

4. Primary referential devices: theory and typology

4.1. Formal types of referential expressions

There are two fundamental types of primary referential devices: NPs that are lexically full (proper names and common nouns), and NPs that are **reduced** to a certain extent, to use the terminology of Bergelson & Kibrik (1980), or **attenuated**, to use the term of Chafe (1994). Anaphoric pronouns discussed above are an example of reduction, both semantic and phonological. The maximal degree of reduction is the zero expression of a participant, as in the second clause in the coordinate structure (6):

- (6) *John_i was sitting at the table and Ø_i daydreaming about the weekend.*

A variety of alternative terms have been applied to the opposition of full and reduced referential expressions, e.g. strong vs. weak (Payne 1993). Givón (1983: 18), in a highly influential article, proposed a scale of "phonological size" comprising the following positions:

- (7) (a) Ø
 (b) unstressed pronoun
 (c) stressed pronoun
 (d) full NPs

Full NPs are a very heterogeneous class, and the ways they are used present many challenges to the study of referential choice in discourse. But the fact is that full NPs are used both for introductory and non-introductory reference. In what follows we concentrate on the reduced referential expressions – those that are specialized in the lexicon and in morphosyntax for anaphoric reference, or reference under high activation.

Abstracting from the issue of accentuation, one should distinguish three formal types of reduced referential expressions found in languages of the world:

- (8) (i) independent pronouns, such as English *he*
 (ii) bound pronouns – affixes or clitics – attached to the head constituent (typically the verb)
 (iii) zero forms

Type (i) is familiar and does not require much commentary. The standard grammatical theory has been based on languages employing this type of reduced referential expressions as the default option.

4.2. Bound pronouns

Type (ii) — bound pronouns — has been widely recognized as a type of genuinely referring units only recently (Kumaxov 1974, Van Valin 1977, 1985, Jelinek 1984, Mithun 1986), although Boas (1911) and even DuPonceau (1819) already wrote about pronouns incorporated into the verb (→ Art. 56). Consider the following example:

- (9) Abkhaz (North-West Caucasian, or Abkhaz-Adyghean)
i-l=z-i=c-sə-rgəlojt'
 3NH.NOM-3F.OBL=for-3M.OBL=with-1SG.
 ERG-build
 'I am building it (e. g., the house) for her together with him'

This example demonstrates four participants of a situation whose referential as well as case/role properties are indicated inside the inflected verb form. Such bound elements are indeed referential pronouns rather than agreement markers since full NPs are not obligatory elements of the clause in languages like Abkhaz (see Kumaxov 1974, Van Valin 1985). Consider an excerpt from an Abkhaz folk tale "The father's will" about an old man who had four sons (with a semi-literal translation, in a phonemic transcription):

- (10)(a) *i-kuraxy d-nejxyan*,
 his_i-old.age he_i [=old man]-was,
 (b) *apsra d-analaga*,
 die he_i-when.started
 (c) *i-ək_o'ənc^oa d-rə-pxyan*,
 his_i-sons_j he_i-them_j-called,
 (d) *j-aajn*,
 they_j-came,
 (e) *adc'a r-i-tejt'*
 the task them_j-he_i-gave
 'He was in his old age, and when he started dying, he called his sons, and they came, and he gave them a task'

In (10), there are multiple cases in which an argument of a clause is represented solely by a pronominal element affixed to the verb. If a full NP is there, as e. g. 'his sons' in (10c), it is in a loose "adjunct" (or "apposition") relation with the pronominal morpheme of the verb, in fact, in a sort of anaphoric relation. After Jelinek (1984) languages of this type have been often termed **pronominal argu-**

ment languages, as opposed to nominal argument languages like English (→ Art. 103). In pronominal argument languages, it is bound pronominal morphemes of the verb, rather than optional independent NPs, that function as arguments of the predication. The theoretical issue of whether and when bound pronouns can indeed be claimed to be full-fledged verb arguments, and how clearly they can be distinguished from plain agreement, cannot be considered as resolved; many arguments in favor of treating a particular language as a pronominal argument language are language-specific.

Chafe (1994: Ch. 12), looking at the pronominal argument language Seneca (Iroquoian), emphasized that in languages of this type the use of pronouns does not depend on activation of the referent: it suffices for a referent to be a core argument of the clause in order to be coded by a pronoun. In this respect bound pronouns are very different from independent pronouns alternating with full NPs. Even though bound pronouns are an analog of unstressed independent pronouns in languages like English, the very technique of morphological coding inside the inflected verb form has important morphosyntactic consequences. For example, since each participant is obligatorily represented in the clause by means of a bound pronoun, such languages typically do not use the headed strategy of relativization; rather they treat the whole relative clause as an adjunct to the bound pronoun on the main verb (see Kibrik 1992b). The employment of bound pronouns (or head-marking at the clause level, see next paragraph) is among the most basic properties of a language and imposes severe restrictions on its other characteristics.

Nichols (1986, 1992), interested in different aspects of essentially the same phenomenon, proposed the typological parameter "head marking vs. dependent marking" of predicate-argument relations (→ Art. 102). Nichols' consistently head marking languages, in fact, coincide with languages with bound pronouns. She found that some geographical areas are particularly disposed to head-marking, and these are, first and foremost, the Americas (see Mithun 1999). For example, consistently head-marking language families in North America include a majority of the biggest families, such as Eskimo-Aleut, Athabaskan, Algonquian, Iroquoian, Siouan, Salishan, Mayan, and others. Other areas abundantly representing the head-marking pattern include New Guinea, as well as some parts

of western Oceania, of Australia (non-Pama-Nyungan languages of Arnhem Land), of Eastern Asia (especially Ainu), and of Africa (particularly the Bantu languages). Abkhaz, amidst mostly dependent-marking language families of Europe and Western Asia (marking roles by means of nominal cases), is an utter geographical exception.

Studies exploring reference maintenance in languages with bound pronouns include Thompson (1989), Payne (1993), Heath (1983), Chafe (1994: Ch. 12), Chafe (ed.) (1990).

In languages with bound pronouns there still exist independent pronouns, but they are used in marked circumstances. The most typical ones are the NP coordination context (like *she and John*), as well as intensification and contrastiveness (like *he himself, he rather than someone else*); see Schwartz (1986); Payne (1993: Ch. 7).

4.3. Zero referential forms

The third formal type of reduced referential expressions, mentioned in (8) above, is so-called zero anaphora. Referential zero is of course not a real linguistic unit but the absence of a formal unit at the spot where some referent is clearly being mentioned. Consider example (11):

- (11) spoken Japanese (Clancy & Downing 1987: 18)
- (a) ... *de yukichan_i ga<...> onigiri*
... and Yukichan SUBJ onigiri
o tsukutteimasu
DO is.making
 - (b) ... *de kondo Ø_i kore o*
and this time this DO
nanka-... iremono ni
sort-of CONTAINER LOC
tsumemashite <...>
is.packing
 - (c) *Ø_i dekakete*
going.out
 - (d) *Ø_i iku wake desu. <...>*
go NOM COP
 - (e) ... *de Ø_i onigiri o <...> toridashite,*
and onigiri DO taking.out
 - (f) *Ø_i hoobarinagara*
while.cramming.into.mouth
 - (g) *Ø_i kooen ni ikimasu.*
park to goes
'And Yukichan is making onigiri
<...> and then she packs them <...>, walks out and goes <...>. She takes an onigiri and, cramming it into her mouth, goes to the park'

Dominance of zero anaphora in a language has less obvious implications for other properties of the relevant language, compared to bound pronouns. The best known examples of zero anaphora languages are Japanese (Hinds ed. 1978) and Chinese (Tao 1996) – languages that have been in extensive contact but are genetically unrelated and typologically radically different. However, zero anaphora is particularly typical of East and South-East Asia, and West Africa, and these are two areas where the isolating morphological type is highly common; there may be a connection between zero anaphora and isolation. Gundel (1980) attempted to connect zero anaphora with "topic-prominence" (Li & Thompson 1976; → Art. 104), another typical feature of East and South-East Asia; see also § 5.2. In the languages of East and South-East Asia usage of zero anaphora is virtually unconstrained in respect to syntactic position; some other languages use zero anaphora only in certain positions (cf. § 8.). For example, some Romance and Slavic languages consistently use zero anaphora in the subject position, while employing pronominal clitics or independent pronouns in other positions. Some kind of zero anaphora is found in almost any language.

Since zero units are by definition invisible, one may wonder in some cases where to posit them – for example, there can be a choice between an "independent" and a "bound zero". Such decisions are usually made on systemic grounds. For instance, in Abkhaz some pronominal morphemes are zero, and by analogy with non-zero morphemes they are usually considered zero affixes.

4.4. Explanation of referential choice

What does referential choice depend on? A simple experimentation with actual discourse examples demonstrates that the choice between various referential options is far from arbitrary or "stylistic", and it is by no means the case that an anaphoric pronoun can always be replaced by a full NP and vice versa. There is considerable agreement in modern functional and typological linguistics that referential choice is cognitively determined and is ultimately related to the state of the speaker's and/or addressee's knowledge and mind in general. Givón (1983) proposed the notion of **topic continuity**, or **accessibility**. He postulated an important iconicity principle: the more continuous/accessible a topic (i.e., referent) is, the less linguistic material is used

to code it (that is, pronouns and zero expressions); and vice versa, discontinuous/inaccessible referents require heavier coding (full NPs) (1983: 17–18). A similar approach was proposed by Ariel (1988, 1990) who distinguished markers of high accessibility (zero expressions and pronouns), mid-accessibility (demonstratives) and low accessibility (nouns) (1988: 77–81). In other works referential choice was more directly related to cognitive concepts. Chafe (1987, 1994) proposed that attenuated referential forms (such as unstressed pronouns) are used when the referent is **given**, or already **active** in the addressee's **consciousness**. Kibrik (1987a) tried to relate anaphoric reference to the speaker's **attention focus**. Givón (1995: 380–384) reinterpreted his earlier findings in terms of **attentional activation** and **search and retrieval operations**. Gundel & Hedberg & Zacharski (1993) suggested a **givenness hierarchy**, ranging between being in focus (anaphoric pronouns), through being activated and familiar (demonstratives), to being "type identifiable" (indefinite NPs). Tomlin & Pu (1991) and Kibrik (1996) explored the cognitive basis of referential choice and concluded that it is what is known in the cognitive psychological literature as **working memory** (Baddeley 1986); reduced referential forms are used if the referent is **activated** in working memory. The role of memory in reference is also emphasized by Cornish (1999).

Most of the cited work is typological in its nature, or typologically oriented. For example, Gundel & Hedberg & Zacharski (1993) compare givenness hierarchies in five languages. One interesting result of the authors' text counts (p. 291–292) is that in each language there are two polar, and by far the most common referential types: on the one hand, plain definite NPs (in all languages), on the other – third person pronouns (English, Russian), zero expression (Japanese), or a combination of third person pronoun and zero (Spanish, Chinese). Other referential types are incomparably less common.

Van Hoek (1997) and Langacker (1996) propose an approach to anaphora that is also termed "cognitive" but is different methodologically from the cognitive approaches discussed above (still it is probably compatible with them). There are some alternatives to cognitive explanations of referential choice in discourse. For example, Levinson (1987) and Huang (1994) treat anaphora in terms of Gricean pragmatics. Fox (1987a), Geluykens

(1994), Tao (1996) studied anaphora in terms of the sociological approach known as Conversation Analysis.

4.5. Activation factors

What makes referents active, or focused, or accessible? A variety of discourse-based and other factors contributing to activation have been proposed in the literature. Among the most influential proposals was Givón's (1983: 13) measurement of **referential linear distance** back to the nearest antecedent, expressed in the number of clauses (see also Clancy 1980). If the referent has been mentioned one or two clauses back, it is likely to be highly accessible or activated and, as a consequence, to be referred to by a reduced expression. If linear distance is greater, the referent's activation is low. Consider an extract from Fazil' Iskander's story "Stalin and Vuchetich":

- (12) Russian
 (a) *I vdrug lico Stalina*
 And suddenly, [the] face of Stalin
mgovenno iskazilos' gnevom
 instantly got distorted with anger
i nenavist'ju
 and hatred.
 (b) *On stal strašen.*
 He grew horrifying.
 (c) *Vučetič pomertvel,*
 Vuchetich turned numb,
 (d) *ne v silax osoznat',*
 [being] unable to realize
 (e) *čem razgneval Stalina.*
 with.what [he] angered Stalin.

The referent 'Stalin' in clause (b) has linear distance of 1 since this referent has also been mentioned in the previous clause. The referent 'Stalin' in clause (e) has linear distance of 3. One can observe the corresponding difference in coding: pronoun *on* in (b) and full NP *Stalina* in (e). If such dependency is systematic, one can conclude that the factor of linear distance may indeed be involved in the process of referential choice.

Other authors proposed different measurements of distance. Ariel (1988) measured linear distance in terms of sentences, rather than clauses. Fox (1987a) indicated that in many cases it is not linear but rather **hierarchical** discourse structure that is relevant for identifying the antecedent. Not infrequently linear and hierarchical distance may be different. For example, when there is quoted conversation in a narrative, making referential choice after the quotation depends on the antecede-

ent that appeared before the quotation; in such cases linear distance may be very large but hierarchical distance very small. Fox employed a theory of hierarchical discourse structure, Rhetorical Structure Theory (for the most recent version see Mann & Matthiessen & Thompson 1992). Still another important distance factor is **episodic**, or **paragraph, boundary** – see Marslen-Wilson & Levy & Tyler 1982, Fox 1987b, Tomlin 1987. These authors emphasized the paragraph boundary as the major factor influencing referential choice and suggested that reduced reference essentially occurs within one paragraph, and when the antecedent is across the paragraph boundary, a full NP is likely to be used. Distance factors are the most powerful ones; the notion of distance is even used as the basis for metaphorical terminology: Payne (1993) distinguishes between short-range and long-range coding devices (essentially, reduced and full referential expressions).

Besides distance to the antecedent, properties of the antecedent itself constitute another group of activation factors. It has long been known that **grammatical subjects** are better antecedents of pronouns and anaphoric zeroes than non-subjects. Consider the following constructed two-sentence example:

- (13) Russian
 (a) *Maša razgovarivala s Tanej.*
 Masha was.talking with Tanya.
 (b) *Ona byla odeta v krasnoe*
 She was dressed in [a] red
 plat'e.
 dress.

Although there are two referents mentioned in clause (a), the pronoun *ona* in (b) refers clearly to the referent 'Masha' which was coded as grammatical subject in (a). As is well known, the notion of grammatical subject is not applicable to all languages (→ Art. 101). More elementary pragmatic and semantic notions, such as clause topic and Actor, may be relevant in addition to or instead of subject, in certain contexts and in certain languages. Even in Russian – a language with a clearly defined grammatical subject – dative Actors of experiential verbs (such as 'be cold', 'like') can be almost as good antecedents of pronouns as prototypical subjects in the nominative case. Tomlin (1995) experimentally demonstrated that in a number of languages, including English, Mandarin Chinese, Burmese (Tibeto-Bur-

man), and Indonesian (Austronesian) the cognitive status of **focal attention** underlies the choice of subject. Thus, there is a tendency that what is focally attended in clause *n* becomes activated in working memory in clause *n+1*. In more traditional terms, theme/topic of clause *n* becomes given/old information in clause *n+1*.

In addition to factors related to the antecedent, there are activation factors of inherent properties of the referent. Some referents get activated more easily, and, as a result, are better suited for reduced mention. **Animate**, and especially human, referents, are much more frequently referred to with reduced forms; for example, in a sample of Russian discourse 78% of anaphoric third person pronouns had a human referent (Kibrik 1996: 266). A less permanent but also quite stable property of a referent is **protagonisthood**, or centrality (see Grimes 1978; Taylor 1994). Referents that are particularly important for the present discourse get activated more easily. On criteria and measurements of centrality see Givón (1990: 907–909).

A number of other factors potentially affecting activation and, as a result, referential choice, have been proposed in the literature; see, e.g., Payne (1993: Ch. 4, 5). However, the factors discussed above probably constitute the core of the cross-linguistically most important activation factors. In different languages, of course, the weight of different factors is different. Givón (ed. 1983) is a collection of papers applying one and the same methodology to a number of typologically and genetically diverse languages, including Spanish, Japanese, Hebrew, Ute (Uto-Aztecan), Chamorro (Austronesian), and others; other cross-linguistic data can be found in Hinds (1978), Chafe (1990), Fox (1996), Fretheim & Gundel (1996). How do different factors interact with each other? Kibrik (1996, 1999) attempted to design a numerical system modelling the interplay of all relevant factors and predicting, rather than post-hoc commenting, referential choices in a sample of discourse.

5. A typology of subsidiary referential devices

5.1. The notion of referential conflict

As was demonstrated in § 3., subsidiary referential devices serve to distinguish between more than one simultaneously activated re-

ferents. Such situations are far from infrequent in natural discourse. Provided that reduced referential devices are semantically incomplete, they have a very broad domain of reference. Therefore, a pronoun or zero can be attributed by the addressee to a referent different from the one meant by the speaker (but being equally activated). This existence of more than one possible candidate for the referent of a referential expression is called here **referential conflict** (otherwise it has been called ambiguity). The speaker should anticipate and preclude referential conflicts. The radical way to preclude a referential conflict (henceforth: RC) is to use a full NP. Natural languages, however, possess a broad repertoire of devices allowing one to stick to a reduced referential expression and still guarantee that the referent is recovered correctly. These devices are exactly what is called here subsidiary referential devices.

Heath (1975) was probably the first to observe that very different lexico-grammatical devices can be employed for the same purpose of telling apart two or more confusable referents. He further illustrated this point with data from Nunggubuyu (Northern Territory, Australia; Heath 1983) – a language that uses a fairly complex noun class system for the same purpose of “referential tracking” for which other languages use the morphosyntactic device of switch-reference (see § 5.4. below). Foley & Van Valin 1984: Ch. 7 and Van Valin 1987 proposed a comprehensive typology of subsidiary referential devices; that typology was inductive and therefore non-exhaustive but it is much used in the following discussion. Comrie (1989) and Kibrik (1991) further developed the typology or lexico-grammatical devices contributing to RC resolution, or **removal**.

It is essential to recognize RC as an important component of the system of referential choice, and, at the same time, as a component separate from activation factors. Both of these points have been questioned in the literature. For example, Chafe (1990) suggested that ambiguity does not exist in real languages, but only in the imagination of “exocultural” linguists. But consider examples (4) and (5) above. The difference in acceptability of (4a, b) and (5a, b) is due precisely to the fact that in the first case RC is removed by gender, and in the second case it is not. Therefore, gender does participate in the reference maintenance process and can be

given the status of a referential device. Another group of authors (Givón 1983: 14, Ariel 1988: 28, Payne 1993: 89, Gernsbacher 1990) suggested (in their respective terminologies) that RC is among the activation factors and that a mention of an intervening referent inhibits the previously activated referent. Consider, however, examples (4) and (5) once again. Suppose that the use of the pronoun *he_i* in (5a) is unfavorable due to the fact that the intervening referent ‘the boy’ has inhibited the activation of the referent ‘John’. Then in (4a) the intervening referent ‘the girl’ must have equally inhibited ‘John’ which apparently did not happen. Therefore, RC is a component of the system of referential choice which is separate from the operation of activation factors like those discussed in § 4.5. RC can rule out reduced referential expressions that are perfectly acceptable from the viewpoint of activation; but RC does not inhibit activation.

5.2. Conventional vs. ad hoc subsidiary referential devices

In the English examples (4) and (5) above, a RC was created by the concurrent activation of two referents. In (4), however, RC was further removed by the grammatical category of gender typical of English third person pronouns. In (5), RC was not removed, since both referents were masculine, and the pronominal references turned out to be unacceptable. Compare that example with the following where both referents are again masculine:

- (14) *John_i was sitting at the table. Suddenly a baby boy_j crawled up to him_i.*
 (a) *He_i lifted him_j.*
 (b) *?He_j lifted him_i.*

In (14) RC is again removed, but due to a totally different mechanism: semantic **compatibility** with the context of the clause. In (14a–b) the verb *lifted* has certain selective restrictions on its arguments. A speaker of English knows that this action can be done by a heavier agent to a smaller and lighter patient. Therefore, the reference as in (b) is ruled out. Subsidiary referential devices fall into two main types: **conventional**, or lexico-grammatical, devices, like gender, and **ad hoc** devices, based on semantic compatibility with the clause context. Foley & Van Valin (1984: Ch. 7), Van Valin (1987) termed the latter type “inference system” and “pragmatic system” thus emphasizing that not only seman-

tics but a wider array of encyclopedic information is important for this type of RC removal. However, all these kinds of information are ultimately conveyed by the semantics of the clause in which the reduced referential device occurs. Van Valin (1987) observed that the ad hoc RC removal system is used in any language but is particularly important in the languages of East and Southeast Asia, including Japanese, Chinese, Thai. Van Valin also suggested that this phenomenon typically cooccurs with zero anaphora. Consider the following example:

- (15) Mandarin Chinese (Li & Thompson 1979: 318, cited from Van Valin 1987: 520–521)

- (a) *Wǎng-Miǎn_i dé-le_i qián_i,
get-PERF money
*Ø_i mǎi-le_i hǎo dōngxi_i,
buy-PERF good things
Ø_i xiàojīng Ø_i mǔqīn.
filial mother
(b) *Yī chuán Ø liǎng, liǎng*
one pass.on.to two two
chuán Ø sān.
pass.on.to three
(c) *Zhū-Chān yí xiàn dōu*
whole county all
xiǎode Ø_i shì yíge huà
know is a paint
méi-guā-huā-huì de míngbǐ
flower-and-plant REL famous.painter
(d) *Ø Zhēng-zhe lái-mǎi Ø.*
fight-PROG come-buy
(e) *Ø_i dào-le shíqī-bā suì...*
reach-PERF seventeen-eighteen year
'(a) Wang-Mian got some money, [he] bought some good things to be filial to [his] mother. (b) One person told [that] to two, two people told [that] to three. (c) The whole county of Zhu-Chan knew that [he] was a famous painter of flowers and plants. (d) [People from the county] were fighting to buy [his paintings]. (e) As [he] reached seventeen–eighteen ...'**

In example (15) there are multiple zero referents; those referring to the protagonist are marked with the “i” subscript index; in sentences (b) and (d) three other referents are coded with zeroes. But still in (c) and even in (e) the protagonist referent is activated enough to be mentioned with zero, despite the existence of several competing referents. In languages like Mandarin the ad hoc system of RC removal operates on a larger scale

that in European languages; Mandarin probably has no conventional RC removing devices.

Conventional RC removing devices are all based on one general principle: they somehow **classify** referents that are currently activated. In the case of gender, such classification is based on **stable**, or permanent, properties of the referent and/or the corresponding NP. Other classifications are based on the **current**, or variable, properties of the referent (like e.g. being the subject of the preceding clause). These two types of referent classification, serving as RC removing devices, are considered below one at a time (for a fuller account see Kibrik 1991).

5.3. Stable classifications

Stable classifications fall into two main kinds: absolute and relative (i.e. hierarchies). **Absolute** classifications represented on pronouns are widely known as **noun classes**, or genders; for an overview see Corbett (1991). Noun classes are typical of Europe, the northern Caucasus, the Near East, most of Africa, New Guinea, some parts of Australia and the New World. The operation of the noun class distinctions marked on independent pronouns has been illustrated with English genders in examples (4), (5) above. One of the world's most extensive noun class systems is found in Pulaar-Fulfulde (= Fula) – this language has over 20 noun classes (Koval' 1997); the employment of Pulaar-Fulfulde noun classes for reference maintenance in discourse has been considered in Kibrik (1991, 1992a). Noun classes can be marked on bound pronouns in head-marking languages. The Abkhaz example (10) provides an illustration (in Abkhaz, number is a part of the noun class category; in the singular, masculine, feminine, and nonhuman are distinguished); see Heath (1983) on a similar system in Nunggubuyu. Some languages have a kind of noun/referent classification system built into the **verbal lexical semantics**. The best known example is Athabaskan languages of North America which have whole series of verb stems with the same meaning, with the only difference that they apply to distinct classes of referents (animate, round, flat, plural, etc.). Consider the following example:

- (16) Navajo, Athabaskan (Bernice Causas, p.c.)

- (a) *shidááádii yinił'í.*
for.some.time 3NOM.looked

- (b) *ńt'ée' 'ayęęzhii yęę ta'*
 then egg that one
nááhídees'náá' jini.
 again.3NOM.moved they.say
- (c) *ta' 'éi t'óó t'áákóó t'óó*
 one that just right.there just
doo-naha'náóó, t'óó
 without-movement just
sí'q jini.
 3NOM.round.object.sits they.say
- (d) *'áádóó shíł t'óó yik'i*
 then maybe just 3OBL.upon
nááneezdá.
 again.3NOM.animate.sat
- '(a) For some time she [= the female eagle] was watching. (b) Then that egg moved again, they say. (c) The one that was without movement, it was just sitting there. (d) Then she sat upon them again.'

In this extract two classificatory verb stems, both translating in their respective contexts as 'sit', are used: *-'q*, referring to arguments of roundish shape, and *-dá*, applicable only to animate referents. These roots alone are capable of removing RC, and such situations are quite common in Navajo. Besides independent and bound pronouns and verb roots, stable absolute classification can be marked on special constituents, known as **classifiers**; on usage of classifiers as referential devices see Downing (1986) and Aikhenvald (2000: 329 ff.). Classifiers are particularly typical of languages of East Asia, South-East Asia and Australia.

Stable **relative** classifications are **hierarchies** of referents according to a certain semantic or pragmatic parameter. One kind of hierarchy is the **activity/agentivity** hierarchy like the one discovered in Navajo by Hale (1973).

- (17) Navajo, Athabaskan (Martha Austin, p.c.)
shimásani t'izi
 my.grandmother goat
yi-l-deezdeel-go
 3ACC.AG>PAT-with-caught-SUBORD
bi-yaa-haalwod
 3OBL.LOC>AG-under-3NOM.raced.away
 'When my grandmother caught the goat, it raced away from her'

In this example, the first clause has overt NPs indicating the participants. The verb has the *yi-* third person prefix (in the accusative position) that indicates, to put it most simply,

that a more inherently active referent (human) acts upon a less active referent (animal). The second clause is again two-place, but has no overt NPs. Here the third person prefix *bi-* is used (in the oblique position). The prefix *bi-* suggests that the agent of the clause is less inherently active than the second participant. Thus the reference of the two pronominal elements in the clause is established: it is the goat that races away from the grandmother, rather than vice versa.

A totally different kind of hierarchy is based on the pragmatic status of relative social position. Such hierarchies are known as **honorific** and are particularly typical of languages of Far East and South-East Asia. For example, in Vietnamese (Lý Toản Thang, p.c.) referents that are comparable to or lower than the speaker in social status can be referred to by means of the third person pronoun *nó* whereas the polite way to mention referents like e.g. the speaker's father in an anaphoric context is, literally, 'my father' or 'that old man'. Therefore, if there is a RC between two referents with different social status in respect of the speaker, a usage of the pronoun can rule out one of those referents. For some further information on honorific distinctions in pronouns see Head (1978).

5.4. Current classifications

Stable classifications rely on fairly permanent properties of referents or corresponding NPs. Current classifications, by contrast, rely on context-dependent, fluid properties of referents, such as: being the protagonist or non-protagonist of the present discourse; being more or less activated at the present moment in discourse; being the subject or non-subject of the previous clause, etc. The range of such current properties is so great that it can be only partially illustrated below. Another crucial parameter in the typology of current classifications is, as in the case of stable absolute classifications, the type of constituent it is marked on: independent pronoun vs. bound pronoun vs. verbal categories vs. special auxiliary constituent. Examples of each of these loci of marking will be presented below.

The best known examples of current classifications marked on independent pronouns are so-called **logophoric** pronouns first identified in Africa by Hagège (1974) and Clements (1975). Classical logophoric pronouns appear in complement clauses embedded in

matrix verbs of speech and thought. Logophoric pronouns are a special type of third person pronouns employed when a referent spoken of in the complement clause is identical with the subject of speech/thought; in the case of non-coreference plain third person pronouns are used:

- (18) Angas, Western Chad (Burquest 1986: 92)
Músa_i lá tènè d̥y_ilká_j mèt
 'Musa_i said that he_i/he_j will go
kàstúwá
 to.the.market'

Frequently the term "logophoric" is used not in the classical sense, but in an extended meaning, e.g. referring to any specialized pronoun appearing in any kind of dependent clause and indicating coreference with an argument of the main clause. Logophoric pronouns are an areal feature of West and Central Africa, see various articles in Wiesemann (ed. 1986). Similar pronouns are found elsewhere, e.g. in Nakh-Daghestanian languages (A. E. Kibrik 1977: 316–317, Testelec & Toldova 1998) and languages of Amazonia (Wiesemann 1986). In some other languages the system is reversed: a marked pronoun indicates **non**-coreference with the subject of the previous clause; this is how the Russian pronoun *tot* is used, opposed to the plain third person pronoun *on* (see Kibrik 1987b). In many languages current classifications are not restricted to tight syntactic contexts but operate on a discourse basis and differentiate more and less activated referents; this is again particularly common in West Africa (Bergelson 1988, Kibrik 1991: 78–81).

Among the current classifications marked on bound pronouns, the most widely known example is the opposition of **proximate** vs. **obviative** of the Algonquian languages of North America. Various terms have been used to define the proximate, such as "discourse topic", "focalized object", "point of view" etc. (see Russell 1996 for a discussion), but in most cases that referent is proximate which is most activated in the speaker's mind at the present moment; to all other referents the obviative status is attributed. Assignment of referents to the proximate vs. obviative status is done by explicit suffixes on the corresponding nouns; thereafter, reference is performed by pronominal suffixes on the verb. Actor proximates and obviatives are represented by overt pronominal suffixes

while transitive patients remain unexpressed on the verb:

- (19) Plains Cree, Algonquian (Bloomfield 1930; cited from Foley & Van Valin 1984: 337)
 (a) *kiskēyim-ēw ayahciyiniw-a.*
 know-**DIR-3PROX_i** Blackfoot_i-**OBV**
 (b) *ēkwa o-paskisikan pīhtāsō-w;*
 and.then his_i-gun load-**3PROX_i**
 (c) *mōskīstaw-ē-w*
 attack-**DIR-3PROX_i**
 (d) *ē-pimisini-yit*
 CONJ-lie-**3OBV_j**
 (a) He_i knew him_j for a Blackfoot.
 (b) Then he_i loaded his_i gun (c) and
 attacked him_j (d) as he_j lay on the
 ground'

North American languages, typically representing pronominal arguments, frequently employ current systems of referent classifications marked on pronominal affixes; such systems vary greatly in their basis of classification. For example, Central Yup'ik Eskimo (see e.g. Woodbury 1983) has a more grammaticalized system than Algonquian; in Eskimo plain third person and "reflexive third person" (analogue of proximate, but used in dependent clauses only) are distinguished. A system much less grammaticalized than in Algonquian is found in some Athabaskan languages (see e.g. Thompson 1989), where third and so-called fourth persons are distinguished.

Current classifications marked on specifically verbal morphemes has been known since Jacobsen (1967) as **switch-reference**. The canonical switch-reference system is based on a verbal inflectional category consisting of two morphemes: same-subject (SS) and different-subject (DS). The subject of the current clause is compared to the subject of a controlling clause (normally, preceding and/or being the main clause with respect to the current clause) as being either identical or different. Once the subject of the controlling clause is known, the SS marker on the verb of the current clause suffices to identify the referent; no further nominal or pronominal material is needed. Furthermore, even the DS marker can be enough to identify the referent of the clause subject: if there are two activated referents, and one of them is the subject of the controlling clause, then only the other one can be the referent in question. The following excerpt is preceded by a description of actions of the khan's wife:

- (20) Tuva (Turkic)
- (a) *demgi ool_b ilbi-zi-bile kör-üp*
 that.very boy magic-3-with see-CONV
ohur-arga,
 AUX-DS
- (b) *Ø_w xaan-ni_n_k baarinda končug*
 khan-GEN in.front.of very
eki šinar-lig čem-i-n sal-gaš,
 good quality-with food-3-ACC put-SS
- (c) *Ø_w ool-du_n_b baarinda mīr_n_{aj}*
 boy-GEN in.front.of even
xoran xolaan čem-i-n sal-ip
 poison mixed food-3-ACC put-CONV
boop-tur.
 be.CONV-COP
 ' (a) As that boy saw with his magic,
 (b) she put a very good food in front
 of the khan, (c) [and] put food mixed
 with real poison in front of the boy.'

The DS marker in clause (a) indicates that the subject of the following clause (on which (a) is dependent) is different from that of (a); therefore, it should be another referent activated at this point, namely 'the khan's wife' who has been spoken of before. The SS marker on the final verb in (b) signals that the subject of (b) and the subject of the main clause (c) are coreferential. Frequently switch-reference is found in languages that have the property of clause-chaining, that is, use long sequences of non-finite clauses where in other languages several finite sentences would be found (→ Art. 100).

Originally thought to be an exotic device of some native American languages, switch-reference turned out to be among the most common subsidiary referential devices; see Haiman & Munro (ed. 1983), Wiesemann (ed. 1986), Stirling (1993). Switch-reference systems are found in languages of all continents, but are especially typical of those languages that have a clearly defined syntactic subject. Some authors have mentioned complications with a strictly syntactic definition of switch-reference. Bergelson & Kibrik (1987), (1995) and Wilkins (1988) pointed to deviations from precise identity between referents. Mithun (1993) suggested that in many cases it may be clause connectedness rather than coreference that is coded by SS markers. Even if the latter is true, the referential function of switch-reference may be a distinct side effect of connectedness marking.

Switch-reference-type categories marked not on verbs but on auxiliary constituents are reported in West Africa (Carlson 1987) and Amazonia (Wiesemann 1986: 377, Popovich 1986).

As was pointed out above, various stable and current classifications of referents are very different in their nature but are cofunctional in a way: they all contribute to resolution of possible referential conflicts. Nevertheless, some languages, like Mandarin Chinese, seem not to employ any of the conventional RC removing devices, while others use an abundance of them. For example, Mundani (Western Grassfields Bantu, Cameroon), has noun class distinctions in pronouns, special logophoric pronouns, and switch-reference marked by verbal prefixes (Parker 1986); this phenomenon calls for an adequate interpretation.

6. Pronominal systems

Pronouns are among the central types of primary referential devices. Furthermore, as has been shown in § 5., they are the most common locus of marking subsidiary referential devices. Thus a typology of pronominal systems is most intimately related to the topic of the present article. However, since this article deals, first and foremost, with the dynamic process of reference maintenance in discourse, the static typology of pronominal systems will be only briefly considered here (→ Art. 56). Useful accounts of the typology of pronominal systems include Majtinskaja (1969), Krupa (1976), Ingram (1978), Sokolovskaja (1980), Jacobsen (1980). An invaluable source of data on the topic is the collection Wiesemann (ed.) 1986, containing detailed accounts of exotic pronominal systems in many individual languages (especially of South America, Africa, and Oceania), and typological articles. For example, Hutchisson (1986) reports a unique system with five numbers in Sursurunga (Patpatar Austronesian, Papua New Guinea): singular, dual, trial, quadral, plural. According to Simons (1986), To'aba'ita (Oceanic Austronesian, Solomon Islands) has a system of over 100 pronominal forms (in particular, aspect is marked on subject pronouns). In Xerente (Jê, Brazil) nominative pronouns are the locus of marking evidentiality, aspect, and intensiveness of action (Popovich 1986: 366).

7. Other aspects of reference maintenance in discourse

Reference in discourse can be approached from different viewpoints. The approach mostly employed above is oriented to the cur-

rent state of the speech participant's mind: at any given time some referents are more activated in it, and some are less. In the course of time, various referents pass through it, like through a stage. On the other hand, reference can be viewed from the perspective of specific referents. On this approach, several phases can be distinguished in the "discourse life" of each referent: introduction, or gradual activation; maintenance in the activated state; deactivation; reactivation; addition of a referent to the set of activated referents; union of two activated referents into one single whole (like *he met her*; *they talked for an hour*); fragmentation – the reverse process. Languages tend to use specific devices for each of these phases; introductory activation, for example, frequently takes two mentions before the referent gets maximally activated; reactivation can be performed by one mention. For some case studies see Kibrik (1992a), Noonan (1992: Ch. 10).

Givón (1995) proposes still another approach: from the viewpoint of the addressee of discourse, various referential devices "cue" certain mental operations ensuring discourse coherence, e. g.:

- (21) (after Givón 1995: 383)
- (a) if ZERO/PRONOUN ⇒ continue current activation
 - (b) if FULL NP ⇒ (i) defer activation decision
(ii) determine referent's importance
 - (c) if UNIMPORTANT ⇒ (i) do not activate
(ii) continue current activation
 - (d) if IMPORTANT ⇒ deactivate the current active node etc.

Such generalizations are assumed to be universally applicable since they rely on the most general, culture-independent concept of how human cognition works.

Dependency between referential processes and discourse **register, genre, and type** have recently started to attract the attention of researchers. The collection Fox (1996) about anaphora contains a number of articles looking at referential processes in specific discourse types in various languages. Examples of explicit comparisons of referential strategies in various discourse registers and types include Fox (1987a), Biber (1991), Toole (1996).

An important issue in discourse reference is what is sometimes called **perspective taking** (perspectivization) or **subjectivity**. To give a primitive example, the same referent, depending on the speaker's identity and viewpoint, can be called *I*, *his wife*, *my wife*, *my mom*, *that heavenly creature*, etc. This referential phenomenon is a part of more general phenomenon: it is an inherent property of human discourse that information can be presented from different perspectives, esp. those associated with different individuals. This issue has been recognized for a long time as being of prime importance for literary studies, since fiction frequently is a combination of different "voices" belonging to the author, different characters, etc. Now it is recognized that perspective taking is as crucial for ordinary conversations as for literary texts. There is a huge amount of research on this topic; selected references include Vološinov (1929: Ch. 3), Arutjunova (1992), Chafe (1994), a number of chapters in Duchan & Bruder & Hewitt (ed. 1995), Green (1995), Padučeva (1996: Part II).

In the discussion in § 2.–5. the identity of different mentions of the referent was usually implied. Reality sometimes deviates from this prototype; for example, there may be no actual antecedent in discourse but the referent of the anaphoric expression is inferred. In such cases one talks about **indirect anaphora**; see Epstein (1999) and references therein.

8. Syntactic anaphora

Historically the study of reference started in linguistics from occurrences of anaphoric expressions that are syntactically induced, as in the following examples:

- (22) (a) *Joseph and his brothers*
(b) *Joseph insulted his brothers*
(c) *Joseph said that he saw a dream*
(d) *Father loved Joseph and Ø always praised him*

In examples (22) the occurrences of anaphoric expressions share three properties: (i) they are obligatory, that is, the anaphoric expression cannot be replaced by a full NP without changing reference; e. g. *Joseph insulted Joseph's brothers* most likely would imply two different people called Joseph; (ii) the anaphoric expression and the antecedent appear in one and the same sentence; (iii) such occurrences are explicable in syntactic terms,

that is, certain structural relations between the target syntactic position and the antecedent position are sufficient for using an anaphoric expression; in (22b), for example, the subject of a clause controls pronominalization of its object's possessor, while in (22d) subject and object positions are controlled by parallel positions in the linearly preceding conjoined clause. All work on reference done within the generative and other formal frameworks, and most of that done in the logical framework (with the partial exception of the so-called Discourse Representation Theory, see Groenendijk & de Jongh & Stokhof (1987), Kamp & Reyle (1993)), deal with syntactic anaphora. (There is vast literature on reference in both the generative and the logical traditions; see surveys in Freidin (1992: Ch. 7) and Padučeva (1985: Part 2), respectively.) Referential phenomena discussed in §§ 2.–5., by contrast, deal mostly with reference in discourse, irrespective of sentence boundaries and syntactic contexts. (For this reason no attention was given here to prototypically clause-internal coreference devices, such as reflexives.) Syntactic anaphora is a subcase of discourse anaphora, and syntactic rules are derivative of discourse strategies. For example, studies of syntactic anaphora usually emphasize the role of antecedent subjecthood. In the generative tradition, a huge literature on so-called c-command grew out from the observation that subjects of main clauses are better antecedents than other syntactic positions. This fact is merely a syntactic reflection of a more general fact that using a referent in the subject position (grammaticalization of attention focus) causes further activation of the referent, and thus its reduced mention subsequently.

Nevertheless, in many cases it is useful to state simple rules for intrasentential anaphora in syntactic terms. For example, English in general is not very much of a zero anaphora language, but in (22d) a zero referential form is used. (In certain theoretical approaches, a distinction between zero anaphora and ellipsis is made, and this particular case could be considered ellipsis, but for the present discussion that distinction is irrelevant.) Most languages use a zero form to express the commonality of an argument (in this case, subject) of two conjoined clauses. In fact, the existence of restrictions on the kinds of deletable arguments are among the main tests for the relevance of the notion of

syntactic subject in a language. In English, only subjects can be deleted in coordinate constructions. Objects can be "shared" only if both verbs precede the object full NP: *Father loved and always praised Joseph*. In many other languages, such restrictions are not imposed on zero anaphora in conjoined clauses, e. g.:

- (23) Svan, Kartvelian
bäč_i žixojäx č'q'int'-s_j i Ø_i
 rock fell boy-DAT and
čwadgär Ø_j
 killed
 'The rock fell on the boy and killed him'

There is a typological scale of languages, one pole of which includes languages like English with very constrained argument deletion in coordinate constructions, whereas the other pole includes languages with extensive use of zero anaphora and absolutely no restrictions on argument deletion. Svan is in fact in the middle of such scale.

9. Locative and temporal reference and predicate anaphora

As was pointed out in § 1., reference to living beings and objects does not exhaust all kinds of reference to specific entities, even though it is the central and the best studied form of reference. At least two other types need to be recognized: reference to places and reference to times. No extensive discussion of these large topics will be presented here, only some brief orientation will be given.

Reference to places (= spatial/local/locative reference) cannot be discretely and objectively distinguished from reference to objects; cf. a chain of referents that take different positions on the axis of size: *this pen – this table – this room – this building – this town – this country*. Each of these entities can be conceptualized as either an object or a location depending on the speaker's goals, even though smaller entities are inherently more inclined to be objects while larger entities are more likely to be mentioned as locations. Thus locative reference is the closest to the object reference considered above. Locative reference has been explored in: several contributions to Jarvella & Klein (1982), Givón (1995: 364–367), Zubin & Hewitt (1995) (→ Art. 43, 44).

Reference to times (temporal reference) can also be viewed as a subtype of reference

to objects, since moments and intervals of time can be conceptualized as objects. Such occurrences of temporal reference interact in a complex way with verbal categories of aspect and tense (→ Art. 42, 59). Some issues of temporal reference in sentence and discourse are considered in Partee (1984), Bulygina & Šmelev (1992), Klein (1994), Givón (1995: 367–372), Almeida (1995), Arutjunova & Janko (eds. 1997).

Questions of reference are frequently subsumed in the literature in a more general domain of discourse **coherence**, or **connectedness** (→ Art. 47). Givón (1990: 896) distinguished four types of coherence: referential, temporal, spatial (= local, locative), and event coherence. The three first phenomena have been considered above. An analog from the area of event coherence would be identification of events by means of semantically reduced verbs, such as *do* or *happen*. For example:

- (24) *Not everybody congratulated John. Sam did, but Mary didn't.*

This phenomenon has been sometimes called **predicate anaphora** or VP anaphora. On predicate anaphora and other peculiar types of reference see Asher 1993 and references therein.

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10. Special abbreviations

AG	agent
CONJ	conjunct mode
COP	copula
DIR	direct
DS	different-subject
NH	non-human
OBV	obviative
PROX	proximate
PAT	patient
RC	referential conflict
SS	same-subject
SUBORD	subordinating affix

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- Andrej A. Kibrik, *Institute of Linguistics,
Russian Academy of Sciences,
Moscow (Russia)*

XI. Lexical typology Lexikalische Typologie La typologie lexicale

85. Lexical typology from a cognitive and linguistic point of view

1. Is there such a thing as lexical typology?
2. Parameters of lexical typology
3. Onomasiological perspective:
paradigmatic axis: hierarchical aspect
4. Onomasiological perspective:
paradigmatic axis: motivational aspect
5. Onomasiological perspective:
syntagmatic axis
6. Semasiological perspective
7. Concluding remarks
8. References

1. Is there such a thing as lexical typology?

In 1957, Joseph H. Greenberg enumerated the following six classes of linguistic typologies: “phonologic, morphologic, syntactic, those pertaining to canonic form [i. e. word classes, phonemic morpheme structures etc.], semantic, and symbolic [including onomatopoeia etc.]” (71). Morphological, syntactic, and even phonological typology is well established (→ Art. 48–84; 94–98). By ‘semantic’, Greenberg clearly means ‘lexical-semantic’, but we may wonder if a (lexical-)semantic typology exists at all, because the lexicon seems to be too full of interlingual diversity and of idiosyncrasies to lend itself to systematic typological studies.

As soon as 1953, Ullmann had sketched “a linguistic typology based on semantic features” (1953: 237), a proposal he took up again in his fundamental 1963 article on “Semantic universals” (1966), putting forward “[...] four [...] features [...] – motivation, generic *versus* specific terms, polysemy, and homonymy –” that “may, if studied on a suitable scale, yield criteria for linguistic typology” (237f.; for the application of these criteria see sections 4., 3.2.1./3., 6.1., and 6.2.).

Less optimistic, the Praguian typologist Vladimír Skalička claims “dass es nicht möglich ist, die Verschiedenheiten des Wortschat-

zes mit den typologischen Methoden zu beschreiben” (1965: 152). Interestingly, though, what he underlines is not the above-mentioned too great diversity, but the too great similarity of languages, that he takes for granted on onomasiological grounds: “Für jede Sprache gibt es dieselbe Aussenwelt und so auch dieselbe Basis des Wortschatzes. [...] Die Unterschiede in der Konstruktion [sc. der lexikalischen Systeme] unterliegen unbedeutenden Schwankungen, die mit Hilfe der Statistik behandelt werden können” (1965: 157; this opinion does not prevent Skalička from furnishing several excellent examples for what will be discussed in 3.3.1., 4.4.2., and 6.1.).

As to the tension between lexical diversity and similarity, a potential new stimulus for typology could have been simply the reorientation of language typology towards language universals research (cf. Greenberg 1966b, with substantial clues for lexical typology: esp. 100–111; cf. also Lehrer 1974: 150–172; see below 3.2.2.). Still, it is symptomatic that lexical typology received important inspirations especially from the “safe” borderland between grammatical typology and lexicology (cf. Plank 1984; Müller-Gotama 1992; Lehmann 1990; Rijkhoff 2000; Antinucci 1977; Geisler 1988; Bossong 1998; Lyons 1967; Hengeveld 1992; Heine 1997; Feuillet 1998; see below 5.1./2.). Undeniably, a further, though limited, encouragement for lexical typologists came from Cognitive Semantics (cf. Talmy 1985 and 1991; see below 5.2.1.). Yet, lexical-typological studies remained *disiecta membra*.

So, in 1992 Lehrer still deplored (249f.) that lexical typology was not mentioned in the two recent linguistic encyclopedias Crystal 1987 and Newmeyer 1988. The same holds for Glück 1993. Similarly, a few years ago,