

Switch-reference in Amele and logophoric verbal suffix in Gokana: a generalized neo-Gricean pragmatic analysis*

Yan Huang

School of Linguistics & Applied Language Studies, The University of Reading

Abstract. Switch-reference and logophoricity are two distinct devices for referential tracking in sentence and discourse. In a classical switch-reference system, the verb of a dependent clause is morphologically marked to indicate whether or not the subject of that clause is the same as the subject of its linearly adjacent, structurally related independent clause. By contrast, logophoricity refers to the phenomenon whereby the 'perspective' of an internal protagonist of a sentence or discourse, as opposed to that of the current, external speaker, is being reported. This article presents a generalized, unified pragmatic analysis of the switch-reference system in Amele and the logophoric verbal suffixation in Gokana in terms of the revised neo-Gricean pragmatic theory of anaphora developed in Huang (1991, 1992, 1994, 1995, 1996, 2000a, b, 2001a, b, 2002a, b, c, forthcoming a).

1. *Setting the scene*

Switch-reference and logophoricity are two distinct devices for referential tracking in sentence and discourse. In a classical switch-reference system, the verb of a dependent clause is morphologically marked to indicate whether or not the subject of that clause is the same as the subject of its linearly adjacent, structurally related independent clause (e.g. Huang 2000a:11). If both subjects are coreferential, a S[ame]S[ubject] marker is used; otherwise a D[ifferent]S[ubject] marker is employed, as the following example shows.

* Part of this article was presented at the 2nd International Conference in Contrastive Semantics and Pragmatics held at Cambridge and the 4th Discourse Anaphora and Anaphora Resolution Colloquium held in Lisbon. The sections on switch-reference in Amele were also presented as part of an invited paper entitled 'Aspects of switch-reference' at the LAGB Workshop on Referential Tracking Systems held at York. I am grateful to the organisers of the Lisbon Colloquium for financially assisting me to present that paper at the conference. The work reported on here was partially supported by a Research Leave Award from the Arts and Humanities Research Board, UK, which is hereby gratefully acknowledged.

(1) (Chickasaw, Munro 1983:223)

- a. hi'lha-cha talowa.
 dance-SS sing
 'He₁ danced and he₁ sang.'
- b. hi'lha-na talowa.
 dance-DS sing
 'He₁ danced and he₂ sang.'

Switch-reference is found in many of the native Indian languages spoken in North America (e.g. Jacobsen 1983), of the non-Austronesian languages spoken in Papua New Guinea (e.g. Longacre 1983, Foley and Van Valin 1984, Stirling 1993), and of the aboriginal languages spoken in Australia, 'in a geographically continuous area, extending from the Indian Ocean across into western Queensland' (e.g. Austin 1981:329). It has also been found in a number of languages spoken in North Asia (Nichols 1983), and in Africa (e.g. Wiesemann 1982, Comrie 1983). A list of some of the world's switch-reference languages can be found in Huang (2000a:279).

By contrast, logophoricity refers to the phenomenon whereby the 'perspective' of an internal protagonist of a sentence or discourse, as opposed to that of the current, external speaker, is being reported (e.g. Huang 2000a, 2001b, 2002b). The term 'perspective' is used here in a technical sense and is intended to encompass words, thoughts, knowledge, emotion, perception, and space-location. Cross-linguistically logophoricity may be morphologically and/or syntactically expressed by one or more of the following mechanisms: (i) logophoric pronouns, as in (2), (ii) logophoric addressee pronouns, as in (3), (iii) logophoric verbal affixes, as in (4), and (iv) long-distance reflexives, as in (5).

(2) (Mundani, Parker 1986)

- ta ne ye a lq' gha ewen.
 3SG that LOG IPFV F1 go market
 'He₁ says that he₁ will go to market.'

(3) (Mapun, Frajzyngier 1985)

- n- sat n-wur ni gwar ji.
 1SG say BEN-3SG COMP ADDR come
 'I told him₁ that he₁ should come.'

- (4) (Kana, Ikora 1995, cited in Dimmendaal 2001)
 wee kɥ aa kii-e Ko.
 3SG-PAST say 3SG go-LOG Ko
 ‘He₁ said that he₁ is going to (a village called) Ko.’
- (5) (Chinese)
 guniang₁ yiwei xiaohuoz₂ ai shang le ziji₁>₂.
 girl think boy love RV PFV self
 ‘The girl₁ thinks that the boy₂ has fallen in love with her₁/himself₂.’

Logophoric languages are found in many places throughout the world, though full/pure logophoric languages - languages which have special morphological and/or syntactic forms that are employed only in logophoric domains, be the form a logophoric pronoun, a logophoric addressee pronoun, and/or a logophoric verbal affix - seem to be found only in Africa (see Huang 2000a:176 for a list of full/pure logophoric languages).

This article undertakes to present a generalized, unified pragmatic analysis of the switch-reference system in Amele and the logophoric verbal suffixation in Gokana in terms of the revised neo-Gricean pragmatic theory of anaphora developed in Huang (1991, 1992, 1994, 1995, 1996, 2000a, b, 2001a, b, 2002a, b, c, forthcoming a). In section 2, I shall summarize the switch-reference system in Amele, based largely on the empirical work of Roberts (1987, 1988a, b). Section 3 provides a description of the logophoric verbal marking system in Gokana, following largely the empirical work of Hyman and Comrie (1981). In section 4.1, I shall outline the three Levinsonian neo-Gricean pragmatic principles. Finally, section 4.2 will present a generalized, unified neo-Gricean pragmatic analysis of switch-reference in Amele and logophoric verbal suffixation in Gokana.

2. Switch-reference in Amele

Amele is a Papuan language spoken in Madang Province, Papua New Guinea. According to a recent language and linguistics encyclopaedia (Asher and Simpson 1994), the language has around 5.300 speakers. (For a grammar of Amele, see Roberts 1987.) Amele is a head-marking language with widespread argument-drop. The basic word order of the language is SOV. As is typical of other Papuan switch-reference languages, Amele makes extensive use of clause-chaining - a construction that contains a

string of clauses without subordinating or coordinating conjunctions. In such a construction, the verb of every dependent clause except that of the last, independent clause is marked for switch-reference. The last verb of the clause chain is termed the final verb; non-final verbs are called medial verbs. To be noted further is that all the medial verbs are inflected with switch-reference morphemes but are not indicated for verbal inflections such as tense and mood or agreement, therefore they cannot stand on their own. By contrast, the final verb is not marked for switch-reference but is fully inflected for such categories, and this inflection is relevant to the whole clause chain (e.g. Huang 2000a:289-290). The switch-reference marked clauses are usually followed by independent, controlling clauses. There are two types of switch-reference marked medial clauses in Amele: (i) those expressing sequentiality of events, and (ii) those expressing simultaneity of events. In the former, isolable morphemes are used to encode SS/DS: *-me* for SS and *-cV* for DS, where *V* is an epenthetic harmonic vowel. In the latter, switch-reference is indicated by the class of subject agreement marker on the verb (Roberts 1987, 1988a, b, see also Stirling 1993: Ch.5).¹ This is illustrated in (6) and (7). (All the Amele data used in this paper are drawn from Roberts 1987, 1988a, b).

(6) Sequential verbs

- a. Ija hu-m-ug sab j-ig-a.
 1SG come-SS-1SG food eat-1SG-TOD.PAST
 'I came and ate the food.'
- b. Ija ho-co-min sab ja-g-a.
 1SG come-DS-1SG food eat-2SG-TOD.PAST
 'I came and you ate the food.'

(7) Simultaneous verbs

- Ho bu-busal-en dana age qo-ig-a.
 pig SIM-run out-3SG-DS man 3PL hit-3PL-TOD.PAST
 'As the pig ran out, the men killed it.'

¹ Roberts (1988b) notes that the switch-reference markers in Amele are originated from a subordinating and coordinating conjunction, corresponding to certain Chimbu languages (such as Chuave, Kumas, Maring, and Wahgi), Gorokan languages (such as Benabena, Fore, Gahuka, Gender, Gimi Hua, Kamano, Siame, and Yagaria), and Huon Peninsula languages (such as Komba, Kube, Nabak, Selepet, and Timbe). See Dench and Evans (1988) for a similar view with regard to some Australian switch-reference languages. For other hypotheses concerning the origins of switch-reference markers in relation to a wide range of switch-reference languages, see Huang (2000a:282-283).

In addition, switch-reference can also be used in certain subordinate clauses in Amele. Here, the language distinguishes two types: (i) left-branching conditional clauses, as in (8), and (ii) right-branching apprehension clauses, as in (9) (Roberts 1987, 1988a, b).

(8) Ija wa na nu-f-ig wa cesaw-ig-en.
 1SG water in go down if-SS-1SG water divide-1SG-FUT
 'If I go down into the water, I will swim.'

(9) Waga a-it-igi-an ija wa no
 crocodile hit-1SG-3SG-FUT 1SG1 water in
 no-co-min fi.
 go down-DS-1SG if
 'The crocodile will get me, if I go down into the water.'

It should be noted at this point that as is common with other switch-reference languages, switch-reference in Amele may involve constructions without syntactic subjects or with what Stirling (1993) calls referentially deficient subjects.² Roberts (1988b) has identified (i) impersonal constructions, where there is a change of physiological and/or psychological state of the part of the subject of the previous verb, as in (10), and (ii) inalienably possessed or in Roberts' term, body part, subjects, as in (11).³ To this, we can add (iii) weather subjects, as in (12).

(10) Ija co-cob-ig ija wen-te-ce-b sab
 1SG SIM-walk-1SG-SS 1SG hunger-1SG.O-DS-3SG food
 j-ig-a.
 eat-1SG-TOD.PAST
 'As I walked, I became hungry, and I ate.'

(11) Cali hu-me-b ege co-nige
 come out (SS) come-SS-1PL 1PL mouth-1PL
 cule-ce-b taw-om.
 leave-DS-3SG stand-1PL-REM.PAST
 'We came out and stood with our mouths open.'

² For example, Warlpiri uses different switch-reference markers for subjects, objects and oblique dative arguments (Simpson and Bresnan 1983), and Barai employs different markers for subject and topic (Foley and Van Valin 1983).

³ Similar examples can be found in Usan (Reesink 1983) and Imbabura Quechua (Stirling 1993).

- (12) Ija co-cob-ig wa hedo-i-a.
 1SG SIM-walk-1SG-SS water finish-3SG-PAST
 'As I walked along, the rain stopped.'

Notice that in (10) above, DS is used at the end of the impersonal clause. However, when more than one impersonal verb is used, all are marked with SS, as in the following example.

- (13) Ija dadan-ti-me-i cucui-te-i-a.
 1SG confuse-1SG.O-SS-3SG fear-1SG.O-3SG-TOD.PAST
 'I was confused and then afraid.'

The use of switch-reference markers in impersonal constructions is also reported for other Papuan languages such as Alamblake, Barai, Kobon, Telefol and Usan. The interesting point is that while Barai, Telefol and Usan, like Amele, usually employ SS to coreference an impersonal verb, Alamblake uses DS, and in Kobon, both SS and DS are possible, though DS is preferred. Roberts (1988b) has regarded this use of switch-reference markers as an instantiation of marking what he terms as topic subordination, which is also found in languages like Gahuku, Buin, Kosena, Kewa, Kobon, Kunimaipa, and Timbe.

We move next to the secondary functions of switch-reference in Amele. As mentioned earlier, the primary function of switch-reference is to minimize referential ambiguity in an ongoing discourse. This is true of Amele (but see Roberts 1988b for a different view). In many switch-reference languages (including Amele), however, there are functional extensions of switch-reference. These so-called 'secondary nuances of meaning' (Jacobsen, 1967) sometimes may even override the primary function of switch-reference. For example, on the one hand, SS markers can be used even though there is an actual switch of subject. Imbabura Quechua, Kiowa, Lenakel and Yarpapai are examples of a language of this type.⁴ On the other hand, the use of DS markers to register the same subject has been reported for Choctaw, Northern Pomo, and Yuma, to mention but a few. In this usage, the function of switch-reference becomes non-referential. It is used, for example, to signal a discontinuity of some kind in

⁴ It should be mentioned at this point that in Amele, there is also an asymmetry in marking referential overlap. Other Papuan switch-reference languages which display a similar pattern include Alamblak, Kobon, Usan, Kewa, Waskia and Irunu (Robert 1988b). But they seem to accord to the number hierarchy for switch-reference pivot NPs: $(NP_a = NP_b) > (NP_a \subset NP_b) > (NP_a \supset NP_b)$ (see e.g. Huang 2000a, and Stirling 1993 for further discussion).

some other aspects of the events described. These may include whether or not the events differ in time, space, or world setting. This is the case with Amele. As pointed out by Roberts (1988b), in this language, a change of time, place and/or world setting warrants the use of a DS marker even if the subjects in question remain the same. This is illustrated in (14) - (16).

(14) Change of time

Ma ben mi-me-i gulom
 taro big become-SS-3SG species
 ibul-do-co-b wal mi-me-i...
 change-3SG.O-DS-3SG ripe become-SS-3SG
 'The taro grows big and then when it changes into a gulom type,
 it is ripe.'

(15) Change of place

Age ceta gul-do-co-bil l-i bahim
 3PL yam carry-3SG-DS-3PL go-(SS) floor
 na tac-ein.
 on fill-3PL-REM.PAST
 'They carried the yams on their shoulders and went and filled up
 the yam store.'

(16) Change of world setting

Eu nu qila i ege meen qaig eu mede qo-qo-na
 that for now this 1PL stone shoot that nose hit-1PL-PRES
 Hedo-co-b eu fal-doc nu cabi sanan me-q-an.
 finish-DS-3SG that fence-INF for work start put-1PL-FUT
 'So now we are gathering that money. When we have finished,
 we will start to do the fencing work.'

In addition, there is also what Roberts (1988b) calls 'surprise' change, where some unexpected turn takes place in the narrated event. This break in the discourse is indicated by a fixed form of the DS marked verb *odoc* 'to do' (i.e. the third person singular DS *odocob*), which normally occurs as the first element in a clause chain.⁵ The sentence in (17) exemplifies this usage.

⁵ Another secondary function of DS marking in Amele is to return a portion of discourse to the main topic. By contrast, Irumu and Chuave employ the same device to bracket off a portion of discourse (Roberts 1988b).

- (17) Age made-lo-ig, ‘Ege sab hedo-q-q.’
 3PL say-HAB.P-3PL 1PL food finish-1PL-TOD.PAST
 Odo-co-b meme-ga-il ana-ga-il age
 do-DS-3S father-3PL-P mother-3PL-P 3PL
 dada-lo-ig.
 confuse-HAB.P-3PL
 ‘They (the children) used to say, “We have already eaten.”
 Whereupon their parents would be completely confused!’

Following Reesink (1983), Roberts (1988b) has called the secondary functions performed by DS markers in (14)-(17) ‘anomalous/false’ DS markings. The same is true of other Papuan languages such as Angaataha and Barai.

The full range of the major functions of switch-reference including non-referential functions in Amele can now be summarized in (18), following Stirling (1993:152).

- (18) Use of switch-reference markers in Amele
 If time, place, event sequence, mood changes, use DS;
 otherwise, if reference changes, use DS;
 otherwise use SS.

3. *Logophoric verbal suffix in Gokana*

Gokana is a Cross-River language spoken in Nigeria. As is documented in Asher and Simpson (1994), there are approximately 10,000 speakers. Unlike the majority of African full/pure logophoric languages, where logophoric pronouns/addressee pronouns are employed to encode logophoricity, Gokana belongs to a small group of African full/pure logophoric languages which utilize a verbal affix to encode logophoricity.⁶ Other languages in this group include Akɔɔse, Efik, Ekpeye, Ibibio, Kana, Moru/Lango/Kaliko (see e.g. Huang 2000a:176). The logophoric marker deployed in Gokana is the suffix *-ee*. The general rule is that this logophoric suffix must be marked on the most proximate verb.⁷ Witness (19). (All the Gokana data are taken from Hyman and Comrie 1981).

⁶ It should be mentioned here that Ikoro (1995) has recently argued that the logophoric marker in Gokana and Kana is a clitic rather than a verbal suffix.

⁷ This sometimes gives rise to multiple ambiguity, as in the following example,

- (19) a. à nyíma kɥ àè dɥ-ε.
 he knows that he fell-LOG
 'He₁ knows that he₁ fell.'
- b. à nyíma kɥ àè dɥ.
 he knows that he fell
 'He₁ knows that he₂ fell.'

Let us now look at some properties of logophoric marking in Gokana. First, person. In Gokana, while third-person logophoric marking is obligatory, second-person logophoric marking is optional but preferred, and first-person logophoric marking is optional but dispreferred, as shown in the following examples

- (20) a. àè kɥ àè dɥ-ε.
 he said he fell-LOG
 'He₁ said that he₁ fell.'
- b. àè kɥ àè dɥ.
 he said he fell
 'He₁ said that he₂ fell.'
- (21) a. oò kɥ oò dɥ-ε.
 you said you fell-LOG
 'You said that you fell.'
- b. oò kɥ oò dɥ.
 you said you fell
 'You said that you fell.'

-
- lébàréè kɥ àè de-è a gl̩ã.
 Lébàréè said he ate-LOG his yams
- a. 'Lébàréè₁ said that he₁ ate his₁ yams.'
 b. 'Lébàréè₁ said that he₁ ate his₂ yams.'
 c. 'Lébàréè₁ said that he₂ ate his₁ yams.'
 d. *'Lébàréè₁ said that he₂ ate his₂ yams.'

The possible range of interpretations indicated in the above example shows that in Gokana, it is both a necessary and a sufficient condition that at least one argument which is made logophoric be coreferential with the matrix subject, and that the argument in question need not be the embedded subject.

- (22) a. mm kɥ mm dɥ-ɛ.
 I said I fell
 'I said that I fell.'
- b. mm kɥ mm dɥ.
 I said I fell
 'I said that I fell.'

This is consistent with the general pattern of person distinction for logophoric pronouns in African languages (e.g. Huang 2000a:177, 2001b, 2002b, see also Hyman and Comrie 1981).

- (23) Person hierarchy for logophoric pronouns⁸
 3 > 2 > 1
 First-person logophoric pronouns imply second-person logophoric pronouns, and second-person logophoric pronouns imply third-person logophoric pronouns.

Clearly, there is a functional/pragmatic explanation for (23). For referential disambiguity, the non-deictic, third-person distinction is the most, and the deictic, first-person distinction, the least useful, with the deictic, second-person distinction in between, since third-person is closer to non-person than either first- or second-person. It follows, therefore, that the fact that first-person logophoric markings are very rare, if not non-existent, in natural languages, is hardly surprising, given that logophoric markings are one of the (most common) devices the current, external speaker (which is encoded usually in terms of a first-person pronoun) utilizes in reflecting the perspective of anyone else (usually an internal protagonist) but him or herself.

Secondly, number. Logophoric marking in Gokana can also be triggered by a plural antecedent, as in (24).

- (24) a. bae kɥ bae dɥ-ɛ.
 they said they fell-LOG
 'They₁ said that they₁ fell.'
- b. bae kɥ bae dɥ.
 they said they fell
 'They₁ said that they₂ fell.'

⁸ Note the same implicational universal for reflexives (Comrie 1989) and reported speech markers (Dimmendaal 2001).

Again this is in keeping with the general pattern of number specification for logophoric pronouns in African languages (Huang 2000a:179, 2001b, 2002b, see also Hyman and Comrie 1981).

(25) Number hierarchy for logophoric pronouns

Singulars > plurals

Plural logophoric pronouns imply singular logophoric pronouns.

Again, from the viewpoint of referential disambiguity, singulars are more important than plurals.

A further point of interest is that a plural logophoric marking can be used for a singular antecedent, provided that the antecedent is properly included in the set denoted by the plural logophoric marking (and that the singular antecedent and the plural logophoric marking accord to the universal for conjunction of different persons, i.e. 1+1, 1+2, 1+3 = 1plural; 2+2, 2+3 = 2plural; 3+3 = 3plural) (Hyman and Comrie 1981). In contrast, the use of a plural regular pronoun in general may or may not include the matrix subject.⁹

(26) a. lébàreè kɥ baè dɥ-ε.
Lébàreè said they fell-LOG
'Lébàreè₁ said that they_{1+2} fell.'

b. lébàreè kɥ baè dɥ.
Lébàreè said they fell
'Lébàreè₁ said that they_{2/(1+2)} fell.'

Finally, mention should be made of logocentric triggers, namely those NPs that can act as an antecedent for a logophoric marking/pronoun. As is common with other African logophoric languages, in the first place, logocentric triggers are generally constrained to be a core-argument of the logocentric predicate of the matrix clause. Secondly, they are typically subjects. In other words, a logophoric marking is canonically subject-oriented.

But logocentric triggers can also be some other, non-subject argument, provided that this argument represents the 'source' of the proposition or the 'experience' of the mental state that is being reported. Two types of construction are particularly common. The first involves the

⁹ Note that in some other logophoric languages, the use of a plural regular pronoun will exclude the matrix subject. This is the case of Ewe, Donno Sɥ, Lele, and Mapun (see e.g. Huang 2000a).

predicate 'hear from', as in (27).

- (27) mm dǎ lébàrè gǎ kɥ àè dɥ-ɛ.
 1SG heard Lébàrè mouth that 3SG fell-LOG
 'I heard from Lébàrè₁ that he₁ fell.'

The second involves 'psychological' predicates expressing emotional states and attitudes, of which the 'experiencer' frequently acts as direct object or object of preposition. This is illustrated in (28) and (29).¹⁰

- (28) po sí lébàrè kɥ àè dɥ-ɛ.
 fear catches Lébàrè that he fell-LOG
 'Fear catches Lébàrè₁ that he₁ fell.'

- (29) à kye lébàrè kɥ àè dɥ-ɛ.
 it angers Lébàrè that he fell-LOG
 'It angers Lébàrè₁ that he₁ fell.'

In fact, there appears to be a cross-linguistic hierarchy for logocentric triggers, in keeping with the familiar grammatical relation hierarchy subject > direct object > oblique first put forward systematically by Keenan and Comrie (1977) (Huang 2000a:182-3, 2001b, 2002b, Hyman and Comrie 1981).

- (30) Hierarchy for logocentric triggers
 Surface structure: subject > object > others
 Semantic role: agent > experiencer > benefactor > others

What, then, are the similarities and differences between switch-reference in Amele and logophoric marking in Gokana. From a functional point of view, both are essentially devices for referential tracking. Furthermore, both represent a violation of categorical iconicity, to borrow a term used by Haiman and Munro (1983). This is because the function of reference tracking is indicated on the verb rather than on the noun itself (see e.g. Comrie 1983 for an explanation of marking on the verb in connection to switch-reference).

There are, however, important differences between switch-reference in Amele and logophoric marking in Gokana. In the first place, in Amele

¹⁰ Similar examples can be found in e.g. Ewe, Donno Sɥ, Tuburi, Mundang, and Mundani (see e.g. Huang 2000a).

switch-reference, the indication of coreferentiality is unmarked, but in Gokana logophoric marking, the indication of it is marked. Secondly and more importantly, switch-reference can in principle apply to predicates of any kind. By contrast, logophoricity is restricted to a set of semantically distinguishable logocentric predicate. In other words, the domain of switch-reference is much wider than that of logophoricity (Huang 2000a, Stirling 1993). This is the case with Amele switch-reference and Gokana logophoric marking. As Hyman and Comrie (1981) have pointed out, logophoric marking in Gokana 'is possible after verbs reflecting an individual's point of view, feelings, state of knowledge, or awareness, e.g. the verbs 'say', 'know', 'see', 'show', 'want', 'fear' etc'. Again this accords with the revised implicational universal for logocentric predicates proposed in Huang (1994, 2000a, 2001b, 2002b) (see also Stirling 1993, Culy 1994).

- (31) A revised implicational universal for logocentric predicates
 Speech predicates > epistemic predicates > knowledge predicates >
 psychological predicates > unmarked directional predicates

What (31) basically states is this: if a language allows (some) predicates of one class to establish a logophoric domain, then it will also allow (some) predicates of every class higher on the hierarchy to do the same. Thus, if a language has logophoric marking with predicates of, say, psychological state, then it will necessarily have it with predicates of thought and communication. Since the verb 'see' in Gokana can function as a logocentric predicate, given (31), it is predicted that verbs such as 'know', 'think', and 'say' in the language can also have this function. This prediction is borne out.

4. A generalized, unified neo-Gricean pragmatic analysis

4.1 Three Levinsonian neo-Gricean pragmatic principles

On a general Gricean account of meaning and communication, there are two theories: a theory of meaning-n[on]-n[atural] and a theory of conversational implicature (e.g. Grice 1989). In his theory of meaning-nn, Grice emphasizes the conceptual relation between natural meaning in the external world and non-natural, linguistic meaning of utterances. He develops a reductive analysis of meaning-nn in terms of the speaker's intention. The essence of meaning-nn is that it is communication which is intended to be recognized as having been intended.

In his theory of conversational implicature, Grice proposes that there is an underlying principle that determines the way in which language is used with maximum efficiency and effectively to achieve rational interaction in communication. He calls this governing dictum the co-operative principle and subdivides it into nine maxims classified into four categories: Quality, Quantity, Relation, and Manner. The co-operative principle and its constituent maxims ensure that in an exchange of conversation, the right amount of information is provided and that the interaction is conducted in a truthful, relevant, and perspicuous manner.

One recent advance on the classical Gricean account is the neo-Gricean pragmatic theory put forward by Levinson (1987, 1991, 2000). Levinson proposes (aside from the irreducible maxim of Quantity) that the original Gricean programme be reduced to three neo-Gricean pragmatic principles, what he dubs the Q[quantity]-, I[nformativeness]-, and M[anner]-principles. Each of the three principles has two sides: a speaker's maxim, which specifies what the principle enjoins the speaker to say versus a recipient's corollary, which dictates what it allows the addressee to infer. Let me take the principles one by one.

(32) The Q-principle

Speaker's maxim:

Do not provide a statement that is informationally weaker than your knowledge of the world allows, unless providing a stronger statement would contravene the I-principle.

Recipient's corollary:

Take it that the speaker made the strongest statement consistent with what he knows, and therefore that:

(i) if the speaker asserted $A(W)$, where A is a sentence frame and W an informationally weaker expression than S , and the contrastive expressions $\langle S, W \rangle$ form a Horn scale (in the prototype case, such that $A(S)$ entails $A(W)$), then one can infer that the speaker knows that the stronger statement $A(S)$ (with S substituted for W) would be false (or $\sim K(A(S))$);

(ii) if the speaker asserted $A(W)$ and $A(W)$ fails to entail an embedded sentence Q , which a stronger statement $A(S)$ would entail, and $\langle S, W \rangle$ form a contrast set, then one can infer the speaker does not know whether Q obtains or not (i.e., $\sim K(Q)$ or equally $\{P(Q), P\sim(Q)\}$).

The Q-principle can be simplified as follows.

- (33) The Q-principle (simplified)
 Speaker: Do not say less than is required (bearing I in mind).
 Addressee: What isn't said, isn't.

The basic idea of the metalinguistic Q-principle is that the use of an expression (especially a semantically weaker one) in a set of contrastive semantic alternates Q-implicates the negation of the interpretation associated with the use of another expression (especially a semantically stronger one) in the same set. In other words, the effect of this inferential strategy is to give rise to an upper-bounding conversational implicature: from the absence of an informationally stronger expression, we infer that the interpretation associated with the use of that expression does not hold. Hence the Q-principle is essentially negative in nature. Using the symbol $+>$ to mean 'con conversationally implicate', we can represent the Q-implicature schematically in (34), and exemplify it in (35) and (36).

- (34) Q-scale: $\langle x, y \rangle$
 $y +> Q \sim x$

- (35) Q-scalar: $\langle \text{all}, \text{some} \rangle$
 Some of my friends like banking on line.
 $+>$ Not all of my friends like banking on line

- (36) Q-clausal: $\langle \text{know}, \text{believe} \rangle$
 John believes that Sue's husband is having an affair.
 $+>$ it is not the case that John knows that Sue's husband is having an affair; perhaps Sue's husband is having an affair, and perhaps he is not.

We move next to Levinson's I-principle.

- (37) The I-principle
 Speaker's maxim: the maxim of minimization
 'Say as little as necessary', that is, produce the minimal linguistic information sufficient to achieve your communicational ends, (bearing the Q-principle in mind).
 Recipient's corollary: the rule of enrichment
 Amplify the informational content of the speaker's utterance, by finding the most specific interpretation, up to what you judge to be the speaker's m-intended point, unless the speaker has broken the maxim of minimization by using a marked or prolix expression.

Specifically:

- (i) Assume the richest temporal, causal and referential connections between described situations or events, consistent with what is taken for granted.
- (ii) Assume that stereotypical relations obtain between referents or events, unless this is inconsistent with (i).
- (iii) Avoid interpretations that multiply entities referred to (assume referential parsimony); specifically, prefer coreferential readings of reduced NPs (pronouns or zeros).
- (iv) Assume the existence or actuality of what a sentence is about if that is consistent with what is taken for granted.

Ignoring its four instantiations, the I-principle can be simplified as follows.

(38) The I-principle (simplified)

Speaker: Do not say more than is required (bearing Q in mind).

Addressee: What is said generally, is more specific.

Mirroring the effects of the Q-principle, the central idea of the I-principle is that the use of a semantically general linguistic expression I-implicates a semantically specific interpretation. In other words, the operation of the I-principle induces an inference to a proposition that accords best with the most stereotypical and explanatory expectation given real world knowledge. Schematically:

(39) I-scale: [x,y]

$y \text{ +>I } x$

(40) (Conjunction buttressing)

$p \text{ and } q \text{ +> } p \text{ and then } q$

$\text{+> } p \text{ and therefore } q$

$\text{+> } p \text{ in order to cause } q$

John pressed the spring and the drawer opened.

$\text{+> John first pressed the spring and then the drawer opened}$

$\text{+> John pressed the spring and therefore the drawer opened}$

$\text{+> John pressed the spring in order to cause the drawer to open}$

Finally, there is Levinson's M-principle.

(41) The M-principle

Speaker's maxim:

Indicate an abnormal, non-stereotypical situation by using marked expressions that contrast with those you would use to describe the corresponding normal, stereotypical situation.

Recipient's corollary:

What is said in an abnormal way indicates an abnormal situation, or marked messages indicate marked situations.

Specifically:

Where S has said p containing marked expression M , and there is an unmarked alternate expression U with the same denotation D which the speaker might have employed in the same sentence frame instead, then where U would have I-implicated the stereotypical or more specific subset d of D , the marked expression M will implicate the complement of the denotation d , namely d of D .

The M-principle can be simplified as follows.

(42) The M-principle (Simplified)

Speaker: Do not use a marked expression without reason.

Addressee: What is said in a marked way, isn't unmarked.

The kernel idea of the metalinguistic M-principle is that the use of a marked expression M-implicates the negation of the interpretation associated with the use of an alternative, unmarked expression in the same set. In other words, from the use of a marked expression, we infer that the stereotypical interpretation associated with the use of an alternative, unmarked expression does not hold. Schematically:

(43) M-scale: $\{x,y\}$

$y \text{ +>M } \sim x$

(44) a. The tram comes frequently

+> The tram comes, say, every ten minutes

b. The tram comes not infrequently

+> The tram comes not as frequently as the uttering of (a) suggests, say, every twenty minutes.

See e.g. Huang (forthcoming b) for further discussion of the three principles.

4.2 A generalized, unified neo-Gricean pragmatic analysis

Having discussed briefly the three Levinsonian neo-Gricean pragmatic principles, I now proceed to outline a revised neo-Gricean pragmatic theory of anaphora, based on Huang (1991, 1994, 1995, 1996, 2000a, b, 2001a, b, 2002a, b, c, forthcoming a) and Levinson (1987, 1989, 2000).

The central idea underlying the revised neo-Gricean pragmatic theory is that the interpretation of certain patterns of anaphora can be made utilizing pragmatic inferences such as conversational implicatures, dependent on the language user's knowledge of the range of options available in the grammar, and of the systematic use or avoidance of particular anaphoric expressions or structures on particular occasions.

Applying the Q-, I-, and M-principles, sketched in sub-section 4.1 above, to the domain of anaphoric reference, we can derive a revised neo-Gricean pragmatic apparatus for the interpretation of various types of anaphoric expression, which can be presented in (45).

- (45) A revised neo-Gricean pragmatic apparatus for anaphora (Huang 2000a)
- (a) Interpretation principles
 - (i) The use of an anaphoric expression x I-implicates a local coreferential interpretation, unless (ii) or (iii).
 - (ii) There is an anaphoric Q-scale $\langle x, y \rangle$, where informally x is semantically stronger than y , in which case, the use of y Q-implicates the complement of the I-implicature associated with the use of x , in terms of reference.
 - (iii) There is an anaphoric M-scale $\{x, y\}$, where informally x is unmarked with respect to, or simpler than y , in which case, the use of y M-implicates the complement of the I-implicature associated with the use of x , in terms of either reference or expectedness.
 - (b) Consistency constraints

Any interpretation implicated by (a) is subject to the requirement of consistency with

 - (i) The revised DRP: The co-arguments of a predicate are intended to be disjoint, unless one of them is reflexive-marked.
 - (ii) Information saliency, so that
 - (a) implicatures due to matrix constructions may take precedence over implicatures due to subordinate constructions, and
 - (b) implicatures to coreference may be preferred according

- to the saliency of antecedent in line with the hierarchy
topic > subject > object, etc.; and
- (iii) General implicature constraints, namely,
- (a) background assumptions,
 - (b) contextual factors
 - (c) meaning-*nn*, and
 - (d) semantic entailments.

Armed with (45), let us now turn to the question of whether or not some aspects of switch-reference in Amele and logophoric verbal suffix in Gokana can be reduced to the neo-Gricean pragmatic theory of anaphora being advanced here. Let us start with Amele switch-reference. If we reverse (18) above, we can obtain its basic pattern of interpretation in (46).

- (46) Interpretation of switch-reference markers in Amele
If SS is used, assume same reference, and general continuity of event;
if DS is used, assume disjoint reference;
if this doesn't work, assume some other change.

With (46) in mind, a generalized neo-Gricean pragmatic account may operate roughly along the following lines, inspired partially by O'Connor's (1992, 1993) work on switch-reference in Northern Pomo. Given the grammar of Amele, any speaker of the language who intends a continuity of events including reference will use SS, otherwise he or she will be in violation of the Gricean principles of co-operative communication. If on the other hand, a SS is not employed but a DS is used instead, then a Q-implicature is generated, namely, the continuity of (some aspects of) the event cannot be maintained. In other words, we can generalize SS and DS markers to form a Q-scale here, on a par with, say, NP anaphora such as reflexives and plain pronouns.

- (47) <SS, DS>
DS +>Q ~ SS

The use of DS will then Q-implicate the negation of the use of SS, as in (6b), (7) and (9) above. Next, further inferences based on the I-principle are needed. The default or preferred I-interpretation is that there is a switch in reference. Recall that given our pragmatic apparatus (45), the interpretation of an anaphoric expression is subject to the I-principle, unless there is either a Q- or an M-contrast set or both to prevent the applicability of the I-principle. What the I-principle does here is to invite a

local coreferential interpretation for the anaphoric expression, provided that such an interpretation does not run contrary to the DRP, information saliency and the general consistency constraints on conversational implicatures. In fact, there appears to be a rigid I-heuristic here: a local subject is in general preferred to a local object or any switch-reference pivots other than a local subject; a non-split antecedent is in general favoured over a split one; and a c-commanding antecedent is in general preferred to a non-c-commanding one. If none of these NPs seems to qualify as a possible antecedent, the next, more remote clause will be examined for possibilities in the same order, and so on and so forth until the root clause is reached. Failure to find an intrasentential antecedent will lead to the search for a previous discourse antecedent, preferably a topic, or settle for an 'arbitrary' interpretation. Given this I-heuristic, DS between subjects will be checked first, and failing that, DS involving no subject or referentially deficient subjects will be checked then. If this is still not the case, then the use of DS is likely to reflect a change in some other eventuality parameter such as time, place, world setting and/or a change of surprise. This is the case with (14) - (17).

Alternatively, the choice of SS/DS can also be accounted for in terms of the systematic interaction between the I- and M-principles. Since the grammar of Amele allows the unmarked SS to be used to encode (some aspects of) continuity of events including reference, the speaker will use SS if such an interpretation is intended. On the other hand, if unmarked SS is not employed but marked DS is used instead, then an M-implicature is created, namely some discontinuity of events is intended. Schematically:

- (48) {SS, DS}
 DS +>M ~SS

Again, (6b), (7), (9), and (14) -(17) above are accountable given this alternative analysis.

Furthermore, given our pragmatic theory, it is also predicted that some extra, special techniques tend to be employed by the speaker to pinpoint the exact type of change in the eventuality parameter if it is not a change in default reference. This prediction seems to be largely borne out. As pointed out by Roberts (1988b), a change of time indicated by DS is frequently backed up by the use of a temporal expression; a change of place marked by DS tends to co-occur with predicates of motion or a locative expression, as in (15); a change of world indicated by DS is frequently a switch from real world to an intended or proposed action, as in (16), or vice versa.

Before we leave Amele switch-reference, mention should also be

made that occasionally both SS and DS can be used for the same construction, but the choice of one over the other frequently brings about a change in meaning. In (49) below, the use of DS in the (b) sentence gives rise to the additional meaning of causality. The same is also reported to be the case for Usan (Reesnink 1983).

- (49) a. Ija co-cob-ig seheli q-ite-i-a.
 1SG SIM-walk-1SG.SS slip (SS) hit-1SG.O-3SG-TOD.PAST
 ‘As I walked I slipped and hurt myself.’
- b. Ija co-cob-igin seheli
 1SG SIM-walk-1SG.DS slip (SS)
 q-ite-i-a.
 hit-1SG.O-3SG-TOD.PAST
 ‘As I walked something made me slip and hurt myself.’

Again this can be accounted for by our M-principle; the use of a marked DS carries a marked message (i.e. explicit causality).

We move next to logophoric verbal suffixation in Gokana. Essentially the same analysis can be applied here. Given that logophoric verbal suffix is the only option available in the Gokana grammar to encode both logophoricity and coreference, any speaker who intends logophoricity and/or coreference will have to use the logophoric suffix. This has the consequence that if the logophoric suffix is not employed but a zero suffix is used instead, a Q-implicature will arise; namely, neither logophoricity nor coreference is intended. In other words, we have a generalized Q-scale <logophoric suffix, zero suffix> here, such that the use of the semantically weaker zero suffix Q-implicates that the use of the semantically stronger logophoric suffix cannot be truthfully entertained, that is to say, both the logophoric interpretation and the coreferential reading which are associated with the use of the logophoric suffix should be avoided. Schematically:

- (50) <-ee [+logophoric, +coreference], -0 [-logophoric, -coreference]>
 0 +> Q ~ ee

This is, of course, the case with (19b) - (22b), and (24b) above. Next, the I-heuristic, discussed above will ensure that the object antecedents of (27) - (29) above be correctly identified.

Alternatively, (50) can also be accounted for in terms of the systematic interaction between the I- and M-principles. Since given the grammar of Gokana, a speaker of the language will use the unmarked zero

suffix if neither logophoricity nor coreference is intended. On the other hand, if the unmarked zero suffix is not used, but the marked logophoric suffix is used instead, then an M-implicature is created, namely, not only coreference but logophoricity as well is intended. Schematically:

- (51) $\{-0[-\text{logophoric}, -\text{coreference}], -ee [+ \text{logophoric}, + \text{coreference}]\}$
 $ee > M \sim 0$

(19a) - (22a) and (24a) above are typical illustrations of the alternative schematized in (51). All this indicates that by extending (45) to verbal element, we can provide a generalized, unified neo-Gricean pragmatic analysis of certain aspects of switch-reference in Amele and logophoric marking in Gokana.

References

- Asher, R. and Simpson, J. (eds.) (1994). *The Encyclopedia of Language and Linguistics*. Oxford: Pergammon Press.
- Austin, P. (1981). Switch-reference in Australia. *Language* **57**. 309-334.
- Comrie, B. (1983). Switch-reference in Huichol: a typological study. In Haiman, J. and Munro, P. (eds.) 17-37.
- Comrie, B. (1989). Some general properties of reference-tracking systems. In Arnold, D. et al (eds.) *Essays on Grammatical Theory and Universal Grammar*. Oxford: Oxford University Press, 37-51.
- Culy, C. (1994). Aspects of logophoric marking. *Linguistics* **32**. 1055-1094.
- Dench, A. and Evans, N. (1988). Multiple case-marking in Australian languages. *Australian Journal of Linguistics* **8**. 1-47.
- Dimmendaal, G. (2001). Logophoric marking and represented speech in African languages as evidential hedging strategies. *Australian Journal of Linguistics* **21**. 131-157.
- Foley, W. A. and Van Valin, R. D. (1984). *Functional Syntax and Universal Grammar*. Cambridge: Cambridge University Press.
- Frajzyngier, Z. (1985). Logophoric systems in Chadic. *Journal of African Languages and Linguistics* **7**. 23-37.
- Grice, H. P. (1989). *Studies in the Way of Words*. Cambridge, MA: Harvard University Press.
- Haiman, J. and Munro, P. (eds.) (1983). *Switch-reference and Universal Grammar*. Amsterdam: John Benjamins.
- Huang, Y. (1991). A neo-Gricean pragmatic theory of anaphora. *Journal of Linguistics* **27**. 301-335.
- Huang, Y. (1992). Against Chomsky's typology of empty categories. *Journal of Pragmatics* **17**. 1-29.
- Huang, Y. (1994). *The Syntax and Pragmatics of Anaphora: A Study with Special Reference to Chinese*. (Cambridge Studies in Linguistics 70) Cambridge: Cambridge University Press.

- Huang, Y. (1995). On null subjects and null objects in generative grammar. *Linguistics* **33**. 1081-1123.
- Huang, Y. (1996). A note on the head-movement analysis of long-distance reflexives. *Linguistics* **34**. 833-840.
- Huang, Y. (2000a). *Anaphora: A Cross-linguistic Study*. (Oxford Studies in Typology and Linguistic Theory) Oxford: Oxford University Press.
- Huang, Y. (2000b). Discourse anaphora: four theoretical models. *Journal of Pragmatics* **32**. 151-176.
- Huang, Y. (2001a). Anaphora. In Smelser, N. J. and Baltes, P. B. (eds.) *International Encyclopaedia of the Social and Behavioral Sciences*. 24 vols. New York: Elsevier Science, vol. 1, 486-490.
- Huang, Y. (2001b). Marking of logophoricity in West African, East and South Asian languages, in *Proceedings of the 6th International Conference on the Languages of Far East, South-east Asia and West Africa*. St. Petersburg: St. Petersburg State University Oriental Press, 224-238.
- Huang, Y. (2002a). Typology of coreferential possessive anaphora and neo-Gricean pragmatics: implications for a newly designed artificial language. *Journal of Universal Language* **3,2**. 31-56.
- Huang, Y. (2002b). Logophoric marking in East Asian languages. In Güldemann, T. and von Roncador, M. (eds.) *Reported Discourse*, Amsterdam: John Benjamins, 211-224.
- Huang, Y. (2002c). Anaphora and word order. In Palek, B. and Fujimura, O. (eds.) *Item Order*. Prague: Charles University Press, 329-346.
- Huang, Y. (forthcoming a). Anaphora and pragmatics-syntax interface. In Horn, L. and Ward, G. (eds.) *The Handbook of Pragmatics*. Oxford: Blackwell.
- Huang, Y. (forthcoming b). *Pragmatics*. Oxford: Oxford University Press.
- Hyman, L. and Comrie, B. (1981). Logophoric reference in Gokana. *Journal of African Languages and Linguistics* **3**. 19-37.
- Ikoru, S. M. (1995). *The Kana Language*. Leiden: Centre for Non-Western Studies.
- Jacobsen, W. H. (1967). Switch-reference in Hokan-Coahuiltecan. In Hymes, D. and Bittle, W. (eds.) *Studies in Southwestern Ethnolinguistics*. The Hague: Mouton, 238-263.
- Jacobsen, W. H. (1983). Typological and genetic notes on switch-reference systems in North American Indian languages. In Haiman, J. and Munro, P. (eds.) 151-183.
- Keenan, E. and Comrie, B. (1977). Noun phrase accessibility and universal grammar. *Linguistic Inquiry* **8**. 63-99.
- Levinson, S. C. (1987). Pragmatics and the grammar of anaphora: a partial pragmatic reduction of Binding and Control phenomena. *Journal of Linguistics* **23**. 379-434.
- Levinson, S. C. (1991). Pragmatic reduction of the Binding Conditions revisited. *Journal of Linguistics* **27**. 107-161.
- Levinson, S. C. (2000). *Presumptive Meanings: The Theory of Generalized Conversational Implicature*. Cambridge, MA: The MIT Press.
- Longacre, R. E. (1983). Switch reference systems from two distinct linguistic areas: Wajokeso (Papua New Guinea) and Guanano (Northern South America). In Haiman, J. and Munro, P. (eds.) 185-207.
- Munro, P. (1983). When 'same' is not 'not different'. In Haiman, J. and Munro, P. (eds.) 223-243.

- Nichols, J. (1983). Switch-reference in the Northeast Caucasus. In Haiman, J. and Munro, P. (eds.) 245-265.
- O'Connor, M. C. (1992). *Topics in Northern Pomo Grammar*. New York: Garland.
- O'Connor, M. C. (1993). Disjoint reference and pragmatic inference: anaphora and switch reference in Northern Pomo. In Foley, W. A. (ed.) *The Role of Theory in Language Description*. Berlin: Mouton de Gruyter, 215-242.
- Parker, E. (1986). Mundani pronouns. In Wieseemann, U. (ed.) *Pronominal Systems*. Tübingen: Narr, 131-166.
- Reesink, P. (1983). Switch-reference and topicality hierarchies. *Studies in Language* 7. 215-246.
- Roberts, J. (1987). *Amele*. London: Croom Helm.
- Roberts, J. (1988a). Amele switch-reference and the theory of grammar. *Linguistic Inquiry* 19. 45-63.
- Roberts, J. (1988b). Switch-reference in Papuan languages: a syntactic or extrasyntactic device? *Australian Journal of Linguistics* 8. 75-117.
- Simpson, J. and Bresnan, J. (1983). Control and obviation in Walpiri. *Natural Language and Linguistic Theory* 1. 49-65.
- Stirling, L. (1993). *Switch-reference and Discourse Representation*. Cambridge: Cambridge University Press
- Wieseemann, U. (1982). Switch-reference in Bantu languages. *Journal of West African Languages* 12. 42-57.
- Wieseemann, U. (ed.) (1986). *Pronominal Systems*. Tübingen: Narr.