

Non-canonical switch-reference and topic situations*

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Submitted as second generals paper

November 19, 2007

Abstract

The first part of this paper argues that switch-reference can be sensitive to situations, specifically to Austinian topic situations. The SR data will show that situations do not have to be spatio-temporally contiguous, and provides a very concrete cross-linguistic example of morphological effects of situation arguments.

The second part will explore a theory of switch-reference that can account for situations. It examines what a complete theory of switch-reference needs to account for. The account is based on the notion of categorical judgments, which attribute properties to individuals. This proposal for a ‘unified’ theory of switch-reference that involves judgments as well as the objects of those judgments.

1 The phenomena

1.1 The Kiowa language

Kiowa (Kiowa-Tanoan) is a moribund language spoken by a few hundred people in the tribe of the same name, mainly in southwestern Oklahoma in the central United States. Although many Kiowas throughout the historical period have shown great interest in the language, the tribe underwent the same Federal linguistic policies as other North American tribes, and children no longer acquire Kiowa. Although language courses are taught at some schools and two universities, in-tribe revitalization efforts have been stymied by many factors, not least of which is the fact that the tribal members are spread over a large region instead

*Thanks for: Judgments and comments from my Kiowa consultants, Carole Willis and Alecia Gonzales. Helpful guidance from Angelika Kratzer, Chris Potts, and Lyn Frazier. Useful comments and advice from Gus Palmer, Jr., Craig Roberts, Valentine Hacquard, Kyle Johnson, Barbara Partee, Florian Schwarz, and Ilaria Frana. Special thanks to Laurel Watkins for her advice and copies of her fieldnotes. Finally, thanks for the patience and suggestions of everyone who has heard parts of this paper, especially the audience at SULA 4.

of centered on one community. Still, native speakers' interest and attention to correct speech and "proper" Kiowa have long permitted useful collaboration with linguists.

Typologically, Kiowa is an SOV language, with no case-marking.¹ Argument roles are marked by a portmanteau preverbal pronominal clitic, which can mark up to three arguments: agent, 'absolute', dative/oblique. I will gloss the pronominals with all three roles like this: [agent: absolute: dative] Most predicates only have one or two arguments; empty roles are marked with the empty set symbol.²

- (1) a. (Ám) (náu) (é-gàu) bágî= áu.
(You) (Me) (This-INV) [2p:3i:1s] give.PF
'You gave it to me'
- b. (Náu) (é-gàu) dè= báu.
(Me) (This-INV) [1s:3i] bring.PF
'I brought it.'
- c. (Travis) ∅= án-mà
(Travis) [3s] come-IMPF
'Travis is/was coming'

All Kiowa verbs mark for viewpoint aspect.³ Tense is only marked for the future, and even that might not be tense (Baker and Travis, 1997), but rather an irrealis.

1.2 Switch-reference

The term 'switch-reference' generally refers to the morphological marking of the maintenance or switch of reference of the subjects of two adjacent clauses (Jacobsen, Jr., 1967; Haiman and Munro, 1983).⁴ To do this, switch-reference is said to *track* subjects across clauses. Here is an example from Kiowa, which expresses switch-reference (SR) as a portmanteau with certain connectives. The form of the morpheme used when the subjects co-refer is called **same-subject**, or SS- marking.

- (2) ∅= hébà=**chè** èm= sáu
[∅:∅:3s] enter.PF=**when.SS** [3s:∅:RFL] sit.down.PF
'When she_i came in, (she_{i/*j}) sat down.'

If the two subjects do not co-refer, **different subject** (DS-) marking is used.

¹See Watkins (1984) for the most thorough descriptive grammar.

²In addition, incorporation is a heavily used feature in Kiowa; I will gloss incorporation with '+', cliticization with '=', other morpheme boundaries with '-', and portmanteaux with '·'.

³With two exceptions: Incorporated verbs are bare, and negated main verbs are neutralized to the 'simpler' perfective form.

⁴Switch-reference is sometimes used with a function in mind, to refer to phenomena like subject drop in coordinations (*He came in and sat down* vs *He came in and he sat down*). In this paper I explore only the cases where SR is morphologically explicit. Explicit SR appears only in the Americas and in Austronesia.

- (3) \emptyset = hébà=è èm= sáu
 [3s] enter.PF=**when.DS** [3s:RFL] sit.down.PF
 ‘When she_i came in, (she*_i/_j) sat down.’

There has been some confusion about how much of the phenomenon the term *switch-reference* refers to. Some authors (including Jacobsen who coined it) use it to refer solely to different-subject marking, usually in opposition to *same-reference*. In this paper, I employ *switch-reference* (SR) for the entire phenomenon, and use *same-subject* (SS) and *different-subject* (DS) to refer to the two different forms it appears in.

1.3 SR tracking non-subjects

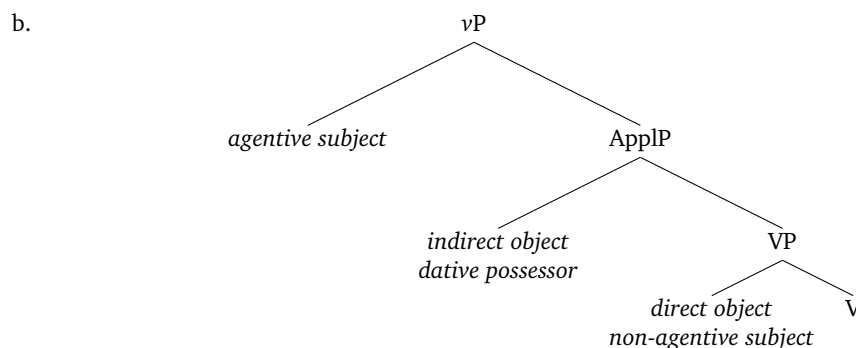
Sometimes, SR tracks an argument that cannot be considered the grammatical subject. This is not a new observation in the switch-reference literature (Dahlstrom, 1982). The current paper is going to focus on these cases.

Dative verbs Kiowa employs intransitive datives to express possession (along the lines of “it is to me”). In (4), the subject of the first conjunct is the dative possessor, not the nominative possessee. However, it’s the possessor that triggers SR (ex. from Watkins 1993).

- (4) góm+jǎgá á= dǎu-mê gàu \emptyset = báuláu+fǎu-l-è
 wind+grease [\emptyset :3s:3s] be-HSY **and.SS** [3s: \emptyset :3s] butter+eat-IMPF-HSY
 ‘He had mentholatum (Mentholatum was to him) and he was eating it like butter.’

Watkins (1993) proposes a thematic hierarchy (AGENT > DATIVE > PATIENT) to explain SR with dative verbs. However, this thematic hierarchy may directly reflect syntactic structure, if we accept the basic word order (S-IO-DO-V) and corresponding structure proposed by Adger and Harbour (2007). In (5a), the possessor would be higher in the structure than the possessee; it is the highest argument, whose base position is [Spec, vP], as seen in the abbreviated tree below.

- (5) a. Subj. I.O. D.O. [pron. Verb]
 Nǎu qǎhì cút yán= ǎu
 I man book [...:3s:3p] give.PF
 ‘I gave the man the book.’



Expletive and impersonal subjects Many predicates have no thematic arguments. These include weather or ambient verbs, and verbs describing situations. In English, verbs like these take *it* as the subject: *It's hot*, *It's interesting that you say that*, etc.⁵ In Kiowa, there is no expletive pronoun, but 'expletives' do trigger agreement on the verb. Oddly, it triggers plural inanimate agreement.⁶

- (6) gà= hójê
 [3p] be.dark
 'It's dark.'

This pronoun is standardly viewed as an expletive. However, under a Davidsonian semantics where every verbal predicate has an event argument, a predicate like *be hot* would be denoted $\lambda e. \text{be-hot}(e)$. The pronoun might thus refer to the Davidsonian event. This idea has strong evidence in studies of anaphora processing by Carminati (2002), which will be discussed in section 7.5.1. If we accept that there is a Davidsonian event argument in the predicate ($\lambda e. \text{dark}(e)$), we can say that event arguments trigger SR in clauses like (7):

- (7) gígáú èm= kífâu [héjáú gà= hójê=è]
 early.morn [3s:refl] jump.up.PF still [3p] dark=WHEN.DS
 'He got up early in the morning when it was still dark.'

When a verb has no DP arguments, it is obvious that the event be permitted as an OC. What if the subject is non-referential? Impersonal subjects are marked 3rd person plural animate in Kiowa. Like French *on*, they are often used in place of a passive (which Kiowa lacks).

- (8) màyí á= tà̀m+chèt-jà̀u
 woman [3p:3s] grave+place.SG-IMPF
 'A woman was being buried. (*On enterrait une femme*)' (Watkins, fieldnotes)

⁵In Standard (American) English, it stands in contrast to *there* expletives.

⁶In many of the verbal agreement paradigms in Kiowa, the plural inanimate is the most pared down, suggesting it may be the default.

Watkins (1993) says these arguments cannot trigger SR. Her example is episodic, but a generic example seems to allow it:

- (9) Thò-gù á= kíya=**chè** góm+sójè ém= hódá+dò-gù
 cold-into [3p] exit.IMPF=**when.SS** wind+cozy [3p:refl] dress+put.on-IMPF
 ‘When going out into the cold, one should dress warmly’ (Watkins, fieldnotes)

Non-canonical SR In some cases, SR ignores the arguments altogether. We get DS-marking when the highest nominal arguments co-refer, or SS-marking even though they don’t. This is known in the literature as **non-canonical SR** (NC-SR).

- (10) Kathryn gà= gút **gàu** Esther=àl gà= gút.
 K. [3s:3p]= write.PF **and.SS** E.=too [3s:3p] write.PF
 ‘Kathryn wrote a letter and Esther wrote one too.’ (Watkins 1993)⁷

The names ‘Kathryn’ and ‘Esther’ most certainly do not refer to the same person (They are relatives of mine!) Yet, SS-marking can be used here.

In section 2 we will explore what it means to use NC-SR in cases like (10). In doing so, we will need to refer to that which SR is tracking in a given utterance. Since it doesn’t always track subjects, we will use the term (SR-) **pivot** to refer to what’s being tracked (We’ll still use the abbreviations SS and DS). Let us re-cast the discussion in terms of pivots: In canonical SR (C-SR), the pivot is the highest argument. In NC-SR, it is something else.

Configurational difference Non-canonical and non-local switch-reference do not occur in all SR languages. In fact, it is not always available in languages with them.

My consultants roundly and routinely rejected examples of NCSR in embedding configurations. In (11), the subjects differ, and DS-marking is required. On the other hand, they casually accepted NCSR in coordination (like (10)).

- (11) dè= dáu+vàigàu=***chè /è** bè= gún
 [1s:rfl]= sing+act.PF=**when.SS/DS** [2s:rfl]= dance.PF
 ‘When I sang, you danced.’

Kiowa is rare in that it expresses SR in coordination and subordination, as shown by the the table of SR morphemes below.⁸

⁷The word for ‘letter’ lexically bears plural marking no matter how many letters there are, thus explaining the the plural object agreement.

⁸*Qàut* and *àut* mean ‘and’, with some expressive content that reflects a speaker’s surprise or disdain.

Coordinate			Subordinate		
Gloss	SS	DS	Gloss	SS	DS
'and'	gàu [gə̀]	nàu [nə̀]	'and,if,as,upon...'	=gàu	=nàu
'and _{EXPR} '	qàut [k'ət]	àut [ət]	'and,if,as,upon...EXPR'	=qàut	=àut
'when'	—	—	—	=chè [tsɛ̀:]	=è [è:]

The only other language I know of that has SR in both configurations is the Australian language Pitjantjatjara⁹. It also has non-canonical SR, and Bowe (1990) reports NCSR only in coordination, not in subordination.

Based on Kiowa and Pitjantjatjara, we can generalize a configurational difference in the behavior of SR:

- (12) **Configurational difference:** NCSR only occurs in coordinating configurations; never in embedding ones. In contrast, canonical SR is available in both configurations.

Other SR languages exhibit it in one configuration or the other. The generalization predicts that NCSR and NLSR would be available only in configuration, and the distribution of NCSR is compatible with this prediction. Other documented cases of NCSR occur only in configurations that are clearly coordinating (Nêlêmwa, Bril (2004); Lakhota, Dahlstrom (1982); Lungstrum (1995)), or that are in dispute (Amele, which Roberts (1988) claims is 'co-subordination'— a clause is syntactically independent of yet semantically dependent on another).

2 Tracking down non-canonical SR

Exactly what NCSR tracks is somewhat ineffable. Consultants (mine and others in the literature) have a very hard time putting into words what is the same or different about the clauses joined by an NCSR-marking conjunction. The general opinion is that the 'scene' or the 'situation' has somehow changed (DS) or remained the same (SS). The consensus among linguists is that NCSR is marking switch or maintenance of some eventuality. I will demonstrate that the eventualities in question are topic situations.

⁹Maricopa might be a third (Gordon, 1986), but the coordination data were not clear enough to be certain that there is coordinating SR.

2.1 NCSR is sensitive to time and space

Non-canonical switch-reference is seen most often when there is a noticeable shift in time or space. These occurrences are often described by speakers as some kind of change in scene, and usually include some overt mention of a place or time.

Stirling (1993) provides several such examples from the Amele language of Papua New Guinea. In (13), a long span has separated the two eventualities.

- (13) Eu 1977 jagel November na odo-**co**-b cul-i-gen
 that 1977 month November in do-**DS**-3s leave-1p-3s.RemPst
 ‘That was in Nov. 1977 that he did that and then he left it for us.’

In (14), the yam-carrying and the yam store-filling took place in different locations.

- (14) Age ceta gul-do-**co**-bil li bahim na tac-ein
 3pl yam carry-3s-**DS**-3pl go-Pred floor on fill-3Pl.RemotePast
 ‘They carried the yams on their shoulders and went and filled up the yam store.’

She also provides an example from Lenakel (p.110), where two conjoined clauses with different tenses must take DS-marking (which is \emptyset)

- (15) *Magau r-n-va (kani) t-**m**-augin
 M. 3s-PRF-come and FUT-**SS**-eat
 (16) Magau r-n-va (kani) t-r-augin
 M. 3s-PRF-come and FUT-3S-EAT
 ‘Magau₁ has come and (he₁) will eat (later).’

In Pitjantjatjara, Bowe (1990) notes that “clauses beginning with a new time and place (p. 97)” take DS-marking (*ka*), even though they have the same subject. Note that here, the second clause does not contain a time or place adverbial, though one appears in translation.

- (17) a. Pula ngalkula wiya-ri-ngkula ngari-ngu
 3du.nom eat-MERGE neg-Incho-MERGE lie-past
 ‘When they₁ both had eaten it all they₁ lay down.’
 b. **Ka** kunyu palu-mpa mama ngunyju-ku ngura ila-ri-ngu-lta
and.SS EVID 3sg.gen father mother-gen place near-Incho-past-emph
 ‘They₁ were really getting near their mother and father’s place now.’

In (18), from the Nêlêmwa language (Bril, 2004), DS is used even though the subjects are the same.

- (18) hla tu kuut bwa on **ba** hla axi bon ...
 3pl go.down stand on sand **and.DS** 3pl see seagull ...
 ‘They go down to the beach and then they see the seagull.’

Kiowa speakers report similar judgments. Here is an example of ‘scene-changing’ from a story in Palmer,

Jr. (2003) about a deer-hunting party.

- (19) a. gìgáú ∅= jǒ-gà, “óp ét= àl-è
 and.SS.then [3s:3s]= say-PF there [3p:3s]= chase-PF
 And then [Grandfather] said, “They₁ chased it (the deer) over there”
- b. nègáú óp jáu=chò ét= àl-è”
 and.DS.then there like.this=instead [3p:3s]= chase-PF
 “And then they₁ chased it this way”.

What is being marked is a shift in action from chasing the deer in one direction to hunting in a different direction (*óp*, ‘over there’)

3 NCSR tracks topic situations

In this section, I propose and lay out the following hypothesis: Non-canonical switch-reference tracks topic situations. That is, the pivot of NCSR is a topic situation. In contrast, the pivot of canonical SR is the highest argument of the verbal predicate. Assuming that the basic meaning of SR is the same, the only difference between CSR and NCSR is the nature of the pivot. It should therefore be possible to explain the configurational difference in terms of pivots.

3.1 Axioms of situation semantics

I adopt a situation semantics along the lines of Kratzer (1989, 2002, 2004). The main points relevant here:

- A situation refers to a part of a possible world. Situations are *particulars*; they are individuated objects expressed in natural language, most often covertly.
- Situations can be arguments of predicates.
- Situations are related to each other by part-whole relations. Any situation is part of a larger situation ($s \leq s'$), except for worlds, which are defined as situations not part of any other.
- Truth-conditions differ from possible world semantics. Propositions are sets of situations, not sets of worlds, and are not necessarily true of the entire world, but of some part of it.
- In an utterance, a topic situation is the situation an expressed proposition is asserted to be true in. Asserting a proposition involves reference to a specific situation.
- All members of the set of individuals are in the set of situations.
- The situation semantics assumed here is not incompatible with Davidsonian event semantics; events are situations as well.

- Aspect is a relation between the event situation (e) and the topic situation (s), e.g.:

$\llbracket \text{perfective} \rrbracket = \lambda P \lambda s. \exists e [P(s) \ \& \ e \leq s] : \langle st, st \rangle$

(20) A sample proposition: Alissa kicked Travis =

$\lambda s. s \prec s^* \ \& \ \exists e [\text{kick}(\text{Travis})(e) \ \& \ \text{agent}(\text{Alissa})(e) \ \& \ e \leq s] : \langle s, t \rangle$

The set of situations s in the past where there is an event within s of Alissa kicking Travis.

3.2 Time and space

Time and space are two delimiting properties of a situation— perhaps the quintessential properties, no matter which theory of situations you adhere to. Given that, if NCSR’s pivot is a topic situation, we should expect NCSR to be sensitive to time and space, as we have seen. A proposition is true in a topic situation. If you change the time or place, you get a new topic situation, of which that same proposition might be false. Barwise and Etchemendy (1987) demonstrate this conception with their example about a card game.

Imagine you are watching a card game, and say about it “Claire has the three of clubs.” You assert the proposition *Claire has the three of clubs* is true in *s*, where *s* is this card game at the present time. If *s* refers to a different time, or a different table, then the proposition might not be true in *s*.

One objection to the claim that time and space play major roles in individuating situations (as particulars) is that situations also have internal properties. How can we be certain that a situation called POKER GAME, or even POKER HAND, is not determined by something inherent to it? A poker hand consists of players, all the cards dealt in the order they were dealt and played, all the bets, the result, etc. We could refer to a poker hand based on these things, and completely ignore the place and time they took place in. Since a poker hand involves one deck, there can only be one three of clubs per hand. Barwise and Perry’s example, *Claire has the three of clubs*, is relevant here as well. The sentence could be restricted to ‘this hand, as determined by the internal properties of this hand’. One of these properties would be the players. If you say the phrase about a situation *s*, and Claire is not in *s*, you are telling a falsehood, even if Claire does have the three of clubs in some other hand. Poker hands differ so much from each other that it seems like no two hands are identical. One might conclude from that that we don’t need to differentiate situations by time or place.

While it is plausibly true that no two poker hands have ever been identical, it is not true that they couldn’t be. In a poker game (or across poker games), it is possible for two different hands to have the

same players, the same cards, the exact same bets, the same result, etc. That is, two hands could have all the same internal properties. However, the chances of this are so infinitesimal that it seems impossible. To show what I mean, let's change examples.

Imagine a new card game, played with two cards. Let's call it "50-50". A 50-50 deck has two cards, one printed with "Win", the other with "Lose". A hand of 50-50 begins when the dealer places the two cards face down on the table, one next to the other. The player then selects a card. If it's the card that says "Win," the player wins. If it's the "Lose" card, the player loses. The game repeats.

Now, imagine recounting a night of playing 50-50. You say *The Win card was on the left*. This is restricted by "the hand I'm talking about". If a hand *qua* situation consisted solely of internal properties, like the layout of the cards, the player's choice, the result, etc, then it is entirely plausible that there were several hands over the course of the game that shared all internal properties. In fact, it seems that the odds of there not being two identical hands during a night of 50-50 are about as low as there being two identical hands of poker in a night. Therefore, internal properties do not suffice to delimit situations. We need time and space.

Of course, the speaker doesn't have to know the exact table or the exact time to use a definite topic situation. The speaker might be talking about a poker hand where they needed a three of clubs for some reason. But they never got it, because *Claire had the three of clubs (in s)*. The poker hand is situated in time and space, but the speaker might not know the exact time and location. The listener might ask *What time did that happen?*, and the speaker could say *I don't know*. Or, they can describe the situation: *It was early in the evening*; they can relate it to some other situation: *When I was ahead twenty dollars*. Expressions like these anchor the situation in time¹⁰, and would presumably have been useful to humans before the advent of accurate timepieces. Expressions like *The table in the corner* or *Over there* anchor a situation in space, and are useful to those of us not equipped with GPS.

3.3 NCSS can track parts of a plan

While space and time have received most of the attention in previous studies of NCSR, these cannot be the only properties that shape situations. In (21), two subjects are different people, yet SS-marking may be used.

¹⁰Note that these expressions are not the topic situations themselves; they only provide one property of that situation.

- (21) Kathryn gà= gút **gàu** Esther=àl gà= gút.
 K. [3s:0:3p] write.PF **and.SS** E.=too [3s:0:3p] write.PF
 ‘Kathryn wrote a letter and Esther wrote one too.’

The letter-writings took place in different locales at different times, so it would not be right to say that there is a spatio-temporally contiguous part of the world shared by the two events. Watkins reports that the non-canonical SS-marking would be used when the letters were “written for the same reason, to the same person, at about the same time.” She has more recently confirmed (p.c.) that the main feature is “shared purpose.” I asked my consultants if they found (21) acceptable, and they did. One commented that a possible scenario would be two people writing the Governor to pardon a prisoner. However, the identity of the addressee doesn’t matter. In (22), the two letters have different addressees (the first-person singular recipient in the first conjunct is reflected in the agreement pronominal).

- (22) Kathryn yá= gút **gàu** Esther Tom gà= gút.
 K. [3s:1s:3p] write.PF **and.SS** E T [3s:0:3p] write.PF
 ‘Kathryn wrote me a letter and Esther wrote one to Tom.’

Interestingly, Watkins presents (21) as half of a minimal pair— one could have used canonical DS-marking instead:

- (23) Kathryn gà= gút **nàu** Esther=àl gà= gút.
 K. [3s:0:3p] write.PF **and.DS** E.=too [3s:0:3p] write.PF
 ‘Kathryn wrote a letter and Esther wrote one too.’

The DS-marked phrase (23) does not have the same feeling as the SS-one (21). Consultants say that (23) is just a description of the facts. Maybe the conjuncts are related, maybe not.

Another minimal pair, offered to me by a consultant, demonstrates this even more clearly. The SR-marker in (24) is non-canonical. In (24a) we get SS marking despite different subjects, while we get DS-marking in (24b).

- (24) a. à= tháum+chàn-thàu **gígáu** náu+còm ∅= yáugút+chàn-thàu
 [∅:0:1s]= first+arrive.PF-FUT **and.SS**.then me+friend [∅:0:3s]= second+arrive.PF-FUT
gígáu á+jǎu+dè ∅= hôn+chàn-thàu
and.SS.then his+male’s.sister+his [∅:0:3s]= last+arrive.PF-FUT
 ‘I’ll get there first and then my friend will get there next and then his sister will get there last.’
- b. à= tháum+chàn-thàu **nègáu** náu+còm ∅= yáugút+chàn-thàu
 [∅:0:1s]= first+arrive.PF-FUT **and.DS**.then me+friend [∅:0:3s]= second+arrive.PF-FUT
nègáu á+jǎu+dè ∅= hôn+chàn-thàu
and.DS.then his+male’s.sister+his [∅:0:3s]= last+arrive.PF-FUT
 ‘I’ll get there first and then my friend will get there next and then his sister will get there last.’

The consultant commented that you would say (24a) if you were talking about or making a plan. I asked what it would mean if we replaced SS-marking with DS-marking (to get (24b)), and she commented that in that case you would simply be stating what will happen, though either is acceptable. That is, both phrases could be used to describe the same sequence of events. If the speaker is talking about the plan, they use SS-marking.

In (24a), everyone is doing the same thing, but SR doesn't depend on what the people are doing; for instance, if one person stays in Carnegie while the others go to Norman, you can still say (25):¹¹

- (25) Carnegie-cà à= thầu-thầu **gàu** ám Norman-cù mà= bá-thầu
 Carnegie-at [1s:∅:∅]= stay.PF-FUT **and.SS** you Norman-to [2d:∅:∅]= go..PF-FUT
 'I will stay in Carnegie and you two will go to Norman.'

In light of the hypothesis that NCSR involves topic situations, the SR in (24a) indicates that the two conjuncts' topic situations are identical.

3.4 Can parts of a situation be linked by coherence?

Situations we define as some part of a possible world. What part of the world are we talking about? The usual conception is a spatio-temporal one, where the parts of a situation are adjacent to each other in space-time. But letter-writing can take place at different times in different places. What is holding situations like that together?

Our clue is that consultants' judge the NCSR in these examples to involve plans. Poesio (1993) shows that plans are situations by using them as resource situations to restrict uniqueness operators in definite descriptions. The definite article *the* has long meant 'the unique x'. However, when we say "the cat," we do not mean that there is one unique cat in the world. Instead, we are saying that there is a unique cat in the part of the world we are talking about, and situation semantics provides a convenient way to model this. Poesio shows that definite descriptions are used to refer to items identifiable only by their role in the plan.

- (26) (Based on Poesio 1993:5)
 A: We have to ship a ton of bananas from Los Angeles to Fresno by Tuesday, but our delivery people are on strike.
 B: No problem. We'll get a truck, drive it to LA, load up a ton of bananas, and hurry up to Fresno.
 A: Yeah, but who's gonna drive the truck?

¹¹Note that the use of an overt subject pronoun (*ám*) in the second conjunct indicates contrastive focus, independent of SR.

In this example, speaker A refers to ‘the truck’, but doesn’t need to know what truck it will be, or even whether it exists in the actual world (maybe it needs to be built first). Yet, it is referred to as unique, and carries the existential presupposition that comes with *the*, because it is unique in the plan.

Also, Jonathan Bennett 1988 (as reported in von Stechow (2005)) argues that events like multi-day conferences can be held together by coherence, not spatio-temporal contiguity. Again, definite descriptions diagnose this. Take the expression ‘the winner’. This denotes the unique person winning a certain event (The unique winner in *s*). The event need not be spatio-temporally contiguous. To take a real-life example: In February 2007, a soccer match between Sevilla and Real Betis of Spain was halted when a Betis fan threw a bottle that hit the Sevilla coach in the head, rendering him unconscious. The last thirty minutes were re-scheduled for March, and eventually took place— after both teams played other matches. Also, it wasn’t held in the original stadium, but in the distant city of Getafe. No one scored in the second part of the match, but Sevilla was leading after the first part. Therefore, Sevilla can be and has been rightfully called ‘the winner’ in *s*, where *s* is this non-contiguous match. Imagine they used the same ball in both parts of the match, and this ball later disappeared. When talking about the match one day, you could easily say *The game ball (in s) disappeared (in s’)*.

Another example of relational coherence, albeit a grim one, involves a scenario where different resource situations lead to different meanings for the same surface string. Imagine a conversation between an officer and a subordinate infantryman, during a pause in battle. The infantryman tells the officer “Everyone’s dead.” Depending on how the situation is delimited, the contextual domain restriction can lead to two completely different propositions.

Two divergent scenarios demonstrate this. The first involves spatiotemporal delimiting. The two soldiers come across a bunker and look inside. The scene is one of unspeakable carnage. The infantryman says “Everyone’s dead,” referring to those whose remains lie in the bunker. The bunker at that time provides the contextual restriction: $\forall x. \text{person}(x) \text{ in } s$, where $s = \text{the bunker at that time}$.

The other scenario involves some other kind of coherence. Here, the whole platoon has been slowly wiped out over weeks of fighting across the entire theater of war. All that remains are these two poor fellows. The officer, in a moment of folly, orders the infantryman to wake the others up to break camp. The infantryman replies “Sir, everyone’s dead.” The contextual restriction here cannot be spatio-temporal,

because not only are those who have died not present, but their deaths took place in no spatio-temporally contiguous or homogenous zone. The contextual restriction is the platoon; the platoon (or at least the sum of its members) is thus a situation.¹² This example shows us three points: That the range of utterance meaning varies enormously based on resource situations, that resource situations do not need to be spatio-temporally contiguous, and that non-events can be situations.

In sum, situations need not be spatio-temporally contiguous chunks of a world, no matter if they're a topic, event, or resource situation. Indeed, under the Kratzerian idea (adopted here as an axiom) that individuals are situations, we should expect individuals to have parts that are not spatio-temporally contiguous. Parts of situations may be linked by relations that merit further investigation, but which include plans, events, and collectivities of like entities (teams, platoons). Alternately, we could say that all situations can be linked by relations of coherence, which include spatial and temporal coherence. A point to investigate in future research is the limit of non-contiguity. How far apart can two situations be and still be part of a larger situation held fast by coherence? There should be no logical restriction on joining different situations, but certainly there would be pragmatic ones, and these may be testable in some way.

4 Switch-reference and minimality

The fact that SR can mark belonging to a plan is intriguing because it points to a puzzle posed by proposing that pivots of NCSR are topic situations— if SR marks identity between its pivot and some other object, it conflicts with the notion of minimality.

4.1 Minimality and situation identity

A major feature of situation semantics is the concept of the *minimal* situation. First proposed by Berman (1987), and Heim (1990), minimal situations have proven useful in explanations of donkey-anaphora and

¹²One might object that the infantryman meant “Everyone (you expect to be) in the present situation is dead”, but I find that objection hard to swallow. It would require the conversation to be about the people as they are in the mind of the officer, but the proposition is about *everyone* as they are in the actual world. An interesting related point is made by McConnell-Ginet (2005). After a party you can say about the party “not everybody came,” where the situation seems to be bigger than the party itself, because the set of invitees is in this case a superset of the set of attendees. Another interesting example would be someone who is meeting up with people at a restaurant. She gets there, but only one other friend has arrived. She could quite felicitously ask “Where is everyone?” Setting aside the ironic use of the universal quantifier, the restriction is still interesting: The people need not be related by any place or time, but at least by some relational coherence (maybe being invited). Perhaps a mix of all three.

exhaustification. In essence, minimal situations are only large enough to make a given proposition true in them.

If a topic situation s is a minimal situation in which the proposition *Pedro sees a donkey* is true, then that situation would only contain Pedro, a donkey, and the seeing event. Switch-reference is generally considered to mark identity across clausal boundaries. However, if topic situations are the pivots of NCSR, and topic situations are minimal, then NCSR cannot mark their identity. Here are the propositions of each conjunct in our ‘arrival example,’ (24a), followed by their respective topic situations.

1. I will arrive (first in s_{plan}) : s_1
2. You will arrive (second in s_{plan}) : s_2
3. Your sister will arrive (last in s_{plan}) : s_3

If each of these topic situations is minimal over their respective propositions, none of these situations can be identical. Two situations are identical if and only if the same propositions are true of them. Another way to put it is that two situations are identical if each’s entire content is the same part of a world as the other. Two minimal situations are identical under the same conditions, with the added condition that they contain nothing that does not contribute to the truth-conditions of the proposition true of them. These parts include individuals, relations, locations, etc.

The minimal situation s_1 only contains the argument I , a predicate *arrive*, an adverbial, and relations between these. It does not contain *you*, which would not contribute to the truth-conditions of the proposition. The next situation, s_2 , does contain *you*. Therefore, they do not contain the same parts, and cannot be identical. The same point could be made about the relationship between s_2 and s_3 .

4.2 Exemplification

Since NCSS cannot track two minimal topic situations, we have a choice. Either topic situations do not have to be minimal, or SR does not mark identity somehow. So far, I have been using a simple form of minimality, but Kratzer (2002, 2004, 2007) argues for a more sophisticated one. She points out that some situations don’t seem minimal. This fact becomes especially important when we try to count situations von Stechow (2005), or evoke situations that resemble mass nouns.

- (27) When snow falls around here, it takes ten volunteers to remove it.
- (28) When nobody showed up, we cancelled the class.

The embedded situations here cannot be minimal in the sense we have been using, since they would be very minute or completely innumerable. How much snow do you need for there to be a minimal situation of snow falling? The pronoun *it* in (27) refers to all the snow that fell, meaning that all the snow is being removed.¹³ It seems that we want maximality as well as minimality. Kratzer proposes **exemplification** as a means to resolve this conflict. In my words:

- (29) A situation *s* exemplifies a proposition *p* iff:
- a. *p* is true in *s* and in all subsituations of *s*, or. . .
 - b. *p* is true in *s* and in no subsituations of *s* (i.e., *s* is a minimal situation of *p*)

Exemplification allows us to maximally delimit situations like *snow falls*. If situation *s* exemplifies *snow falls*, then either the proposition is true of all its subsituations, or the snow itself is defined with some maximality operator, and the proposition is true of none of *s*'s subsituations. In the former case, *s* is not a minimal situation where *snow falls*, but it doesn't need to be in order to exemplify that proposition.

Unfortunately, exemplification is still not compatible with NC-SR, because doing so would rule out non-canonical SS-marking. Take the arrival example again. Arrivals are minimal exemplifying situations, because no part of an arrival situation is an arrival situation. In the sentence *I will arrive first*, a topic situation s_a is large enough to exemplify $\lambda s. I will arrive first in s$.¹⁴ The exemplification takes place via minimality. The same goes for the second conjunct—its situation s_b minimally exemplifies the proposition *You will arrive second in s*.

Let's focus on the second proposition. If SR marks that $s_a = s_b$, then s_a and s_b exemplify the same proposition. However, as we've already seen, *I will arrive first* and *You will arrive second* are in no way the

¹³As a side note, compare (27) to this variant:

- (i) When snow falls around here, every homeowner_i removes it from their_i driveway.

Here, *it* cannot refer to all the snow that falls around here, but rather all the snow that fell in *x*'s driveway. This seems to indicate that *snow falls* is exemplified by a resource situation corresponding to a driveway. But the embedded clause does not mean *When snow falls in driveways around here*. Actually, even in (27) we don't have to say that the volunteers remove *all* the snow that fell; only that they removed it from places it needs removing from. But that might simply be due to the harmless nature of snowfall. Imagine a town on a leaky oil pipeline:

- (iia) Whenever oil spills around here, it takes ten volunteers to remove it.
 (iib) Whenever oil spills around here, every homeowner removes it from their driveway.

These examples show what I mean more clearly. In (iia), the volunteers do remove all the oil that spills, but not in (iib). One way out might be that *it* can refer to the individual $[x = \sigma z. oil(z)(s)]$, where *s* is a resource situation. Resource situations can be filled with anaphoric pronouns, or with variables. If *s* is a variable bound by the situation modified by *from x's driveway*, the oil is automatically restricted to the driveway. In that case, *it* refers to oil in (iib), but not all the oil denoted by *oil* in the when-clause. In (iia), the resource situation is anaphoric, referring to the situation exemplifying the when-clause. In that case, *it* does refer to all the oil spilled.

¹⁴*First* would refer to the plan situation, which I leave out of this example for clarity.

same proposition. Their exemplifying situations cannot be identical. We are still faced with a choice: Either a topic situation does not have to exemplify the proposition it is asserted over, or switch-reference is not marking identity among topic situations.

We can figure out which choice is correct by examining a tacit assumption underlying the notion of minimality: An exemplifying situation's properties are restricted to those linguistically expressed in its scope. That is, given a structure like $[\lambda s. P(s)](s_1)$, the properties of s_1 are only those provided by P . With a situation exemplifying *Tom ate a sandwich*, we don't want to include anything outside of the proposition, such as the knife he used to spread sauce on the bread. On the other hand, the plan situation in (24a) may contain more situations than what is linguistically expressed; for instance, if I told you a plan, I might withhold certain parts of it from you. These other parts would (at least for me) be part of the plan situation. Or, if each conjunct is being expressed for the first time, and the speaker expects that the plan will have more parts, the plan referred to in each conjunct has properties (= propositions) that are not expressed.

This tacit assumption does not hold for non-minimal plans, and there are other cases where it does not hold. Kratzer (2007) shows that non-exhaustive answers involve situations that contain more than what is being expressed. Topic situations do not need to exemplify the proposition in their scope.

4.3 Non-minimal situations and implicit restriction

Topic situation arguments can thus form a sort of 'family' with resource situations, which share the property of being able to be true in non-expressed propositions. These 'non-minimal' situations¹⁵ (NMS) are salient in an utterance; resource situations have usually either been introduced or are salient in the world— recall our infantryman example. They must exist in the world of evaluation (the situation corresponding to the 'actual world'), so you cannot say *Everyone(s_r) is happy* if s_r does not exist. Non-minimal topic situations behave similarly; they must exist. You cannot refer to a certain plan if there is no plan.

NMS can be defined as in (30), and placed in a continuum with exemplifying situations based on the truth of a proposition in a situations' subsituations:

- (30) A situation s is non-minimal with respect to a proposition p iff p is true in s and in some subsituation(s) of s .

¹⁵I use minimal here to mean 'exemplifying a proposition expressed in its scope.'

- (31) **minimal exemplifying:** True in no proper part:
 $P(s) = 1 \ \& \ \neg \exists s' [s' < s \ \& \ P(s') = 1]$
non-exemplifying (non-minimal): True in some proper part:
 $P(s) = 1 \ \& \ \exists s' [s' < s \ \& \ P(s') = 1]$
maximal exemplifying: True in all proper parts:
 $P(s) = 1 \ \& \ \forall s' [s' < s \ \rightarrow \ P(s') = 1]$

In addition to resource situations, non-minimal topic situations are useful for contextual restriction. An ongoing debate centers on the mechanism by which this restriction takes place. It is certain that phrases like *It is raining* do not mean the entire world. Among others, Stanley and Szabó (2000) and Martí (2006) defend the claim that unspoken arguments restrict the event by restricting domains of quantification.¹⁶ (Kratzer (2004) argues that these variables represent situation arguments, and provides an example of their being marked explicitly.) In contrast, Récanati (2002, 2007) argues instead for a process of **pragmatic enrichment**. He claims that only a few predicates have location arguments— those like *arrive*, which require that the speaker know the location of the event. All other predicates, like *rain* or *dance*, can still be restricted in a different way. Take his example:

- (32) A: Was John present at the ball?
 B: Yes, he danced all night.

It is clear that the dancing is restricted by *the ball*, but how so? Récanati argues that the location is added pragmatically to the truth-conditions of the phrase, within the scope of the event quantifier.

- (33) $\exists e \exists t$ PAST (*t*) & TIME (*t, e*) & DANCING (*e*) & AGENT (John, *e*) &
 ALL-NIGHT (*e*) & LOCATION (*the – ball, e*)

His argument rests on two problematic assumptions. First, the location of an event is either an argument of the predicate or is supplied via pragmatic enrichment. Second, the linguistically expressed location must be associated with the predicate.

The first assumption is problematic in cases where there would be an argument and the kind of restriction seen in pragmatic enrichment. For instance, if the location argument of *arrive* is saturated by the place of arrival, and the point of arrival is specified, where does the restriction come into play? Here is another ballroom example:

- (34) A: Was John present at the ball?
 B: Yes, but he arrived at the back door— what a faux pas!

¹⁶We have seen that space and time do not always suffice to delimit a situation, but let us pass over that; we could replace “location” with “situation” here with no major problem.

The location of arrival is the back door (of the building housing the ball), but *the ball* is still restricting the arrival just as much as it does in (32). Presumably, *the back door* would saturate the location argument of *arrive*, leaving no need for pragmatic enrichment. Otherwise, you could pragmatically enrich *at the ball* as well (You could say it overtly: *He arrived at the ball at the back door*). But what would stop infinite pragmatic enrichment?

We can also eliminate the assumption that the location argument is directly associated with the predicate. Under the situation semantics assumed here, the location is encoded in the topic situation, which is not an argument of the predicate. Implicit restriction of the main predicate can come either from a minimal topic situation or a broader, non-minimal one. This is not necessarily an argument against association with the predicate, but rather a reminder that we can get by without it. Since Recanati's first assumption is flawed, and the second is unnecessary, we should not accept the conclusions he draws from them.

Allowing non-exemplifying topic situations also responds to one of Récanati's objections to a variable-based approach. He proposes a 'weatherman' example in which one could felicitously say "It's raining!" with an existential meaning. Imagine a drought where it hasn't rained in months. To see if it rains, you set up rain gauges in several different locations and connect them to a command center such that if any of them detect rain, an alarm goes off. One day, you are in the room next door to the command center when you hear the alarm. You can felicitously say "It's raining!" without knowing where it's raining. Recanati claims you say (in situation terms) $\exists s$. It's raining in *s*, to which pragmatic enrichment adds a condition & LOCATION. Martí and Elbourne (p.c. to Recanati) counter that the place can be the whole world or some suitably large area so that you say $\exists e$. It's raining (*e*) in *s*, where *s* is this suitably large area.

In response to this, Recanati points out that that would require two ideas of locations: broad and narrow locations. The broad location involves asserting truth within it; the narrow location involves asserting truth throughout it. For instance, if you say "It's raining in Paris," you could mean that every part of Paris is undergoing precipitation, or that some part is. If all of Paris is getting wet, PARIS is a narrow location. If only part of it is rained upon, PARIS is a broad location. I believe that this example requires a more thorough look at the semantics of *in*, but the idea is on the right track.

Instead of using pragmatic enrichment, the broad location is supplied non-minimal topic situation. The narrow location is provided by an exemplifying topic situation. The non-minimal situation would be appro-

priate in the ‘weatherman’ example, while the exemplifying one would not.

- (35) “It’s raining!” \Rightarrow (It’s raining in s_3)
- a. ‘Broad’ (judged fine): It’s raining in s_3 and in some subsituation of s_3 .
 - b. ‘Narrow’ (judged odd): It’s raining in s_3 and in all subsituations of s_3 .

Another advantage of using situation arguments for contextual restriction is that they do not need to be spatially contiguous, while locations do. The NMS need not refer to any spatiotemporal location, any territory, or even the whole Earth. It could easily refer to some spatially non-contiguous set of locations that share a coherent relation— like being watched by the weatherman.

In summary, we see that non-canonical SR proves useful for the examination of the notion of minimality. Holding the assumption that SR marks some sort of identity, and accepting that NCSR tracks topic situations, it follows that topic situations do not have to be ‘minimal.’ This conclusion holds even if we adopt a richer version of minimality, like exemplification. This conclusion is supported by the inclusion of non-minimal topic situations in a family of situations that refer to salient definite situations, and provide different levels of contextual restriction than exemplifying topic situations would.

5 The configurational difference

Tying NCSR to topic situations allows us to explain the configurational difference in section 1.3. NCSR is unavailable in embedded contexts. Under the assumption that the only difference between canonical and non-canonical SR is their pivot, we can reframe this difference: Topic situations cannot be pivots in embedded contexts. The strongest explanation of the configurational difference in these terms is that embedded clauses do not contain topic situations.

5.1 Attitude predicates

Kratzer (2004) argues that clauses embedded under attitude predicates do not contain a topic situation. Attitude predicates contain a *res* argument. The *res* is the situation that the attitude is about. If you believe that it is raining, you believe about s that it is raining in s . However, the *res* is not embedded. It is an argument of the matrix attitude verb, and sits in the matrix clause. The embedded clause is merely a proposition (and another argument of the attitude predicate).

Kratzer argues for this with an example parallel to Barwise and Perry's example, *Claire had the three of clubs*. You can hold the right belief about the wrong situation. By 'right belief' I mean a proposition such that there is some situation in the actual world where the proposition is true. However, you assert beliefs over a particular situation, or relate people's beliefs about actual situations, so you can ascribe a belief to the wrong situation. This is reflected by the falsehood of Barwise and Perry's example, and by the oddity Kratzer discusses.

5.2 Frame-setting adverbials

In addition to intensional clauses, frame-setting adverbial clauses (such as *When Travis was little...*) behave like other adverbials (such as 'yesterday'). *Yesterday* expresses a property of situations: $\lambda s. \text{yesterday}(s)$. Correspondingly, frame-setting clauses are properties of situations. A property is equivalent to a set of objects with that property. So a property of a situation is also a set of situations, which are equivalent in a situation semantics to a proposition. Embedded propositions are not relativized to a situation *within* the embedded clause where SR is found.

Essentially, subordinate clauses are sets of situations; they are propositions that are not relativized to a topic situation. This conclusion popped up in von Stechow (1994). Von Stechow claims that adjunct clauses are propositions (sets of situations) that restrict the domain of an adverbial quantifier. The subordinate clause does not itself contain a topic situation, but its proposition is true of some part of the matrix topic situation.¹⁷

The preceding phenomena don't have topic situations in them. It follows that NCSR does not occur in subordinating configurations. However, this explanation could mean that the configurational difference (coordinate vs. subordinate) is too simply conceived. It opens the door to subordinate clauses that might be large enough to have topic situations or even assertions. Such clauses might include non-restrictive relative clauses, or because-clauses— which Johnston (1994) and Sawada and Larson (2004) both describe as 'bigger' than normal subordinate clauses. Unfortunately, we cannot test for these kinds of clauses with Kiowa, for its because-clauses and relative-clauses do not mark SR at all.

¹⁷Under the Kratzerian account we adopt here, this subpart may be the Davidsonian event, which do exemplify their proposition (Kratzer 2007).

- (36) à= hébà [bôt à= kóp+dấu-dò]
 [∅:∅:1s] enter.PF because [∅:∅:1s] sick+be-because
 ‘I went in because I felt sick.’
- (37) qáhì èm= bô-dè náu+fàbì ∅= dáu.
 man [2s:∅:3s] see.PF-REL me+brother [∅:∅:3s] be
 ‘The man you saw is my brother.’

6 Building a theory of Switch-reference

So far, this paper has focused on demonstrating that switch-reference is sensitive to topic situations, especially non-minimal ones. In this section, I will outline a theory of switch-reference that can handle situations while respecting the configurational difference.

6.1 Schema of SR

We can observe a basic pattern in the occurrences of SR. First, take any two clauses, A and B, joined by a connective *c*. A either precedes B (in coordination) or dominates B (in subordination). We know from syntactic facts (e.g., Watkins, 1993) that the SR morpheme is part of clause B.

- (38) A [c-SR [B]]

SR-marking on *c* means that within B, there is a pivot *x*. It also means, informally speaking, that within A there is an argument *y* that *x* is ‘judged against’. Let us call this the anti-pivot.

- (39) [...*y* ...]_A [c-SR [...*x* ...]_B]

A crucial fact is that *y* would be the pivot of A if A were SR-marked. Also, if there were an SR-marked clause, D, that followed B the way B follows A, *x* would be the anti-pivot of D.

Any fully complete theory of SR must account for three actions. First is the **selection** of the pivot. Is there a mechanism for this? Or does it fall out from other phenomena? A second action is the **singling out** of the anti-pivot. I say ‘single out’ because the anti-pivot is not just some discourse entity– it would be the pivot of the other clause. Third is the **anaphoric step**, the relation of the pivot to the anti-pivot which is marked by SR. It can either be co-referent, or not.

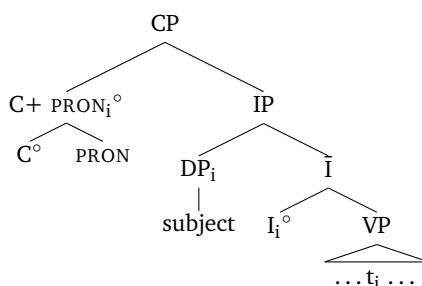
6.2 Previous approaches

I will briefly discuss the two major theoretical approaches to switch-reference; a formal one developed by Finer (1984) and Broadwell (1997), and a functional one by Stirling (1993).¹⁸ Each approaches the problem differently, but neither proposal sufficiently explains the data and holds as a system.

Finer 1984

Finer in his dissertation proposes a syntactic account. SR is an \bar{A} -pronominal subject to the binding theory (Chomsky 1981). For him, pivot selection is based on index sharing. The subject raises to [Spec, IP] to set up a Spec-Head relationship with I° . In doing so, the NP transfers its index to the head. At C° sits a head fused with a pronominal. The pronominal must be co-indexed to I° .

(40)



The singling out occurs the same way: The pivot of the clause dominating the SR-marked one sits in [Spec,IP], and its index is shared with its I° . The $C^\circ +$ pronominal takes its index.

The anaphoric step is straightforward— the higher C° c-commands the lower one and is in its binding domain. Therefore, if they co-refer, the pronominal is bound, giving SS marking. If they don't co-refer, the pronominal is free, giving DS-marking.

Finer's account is elegant, and he rightly shows that SR is grammatical (it is not a tool meant for disambiguation), but he misses half the problem with SR, in two different ways. First, he does not account for non-canonical SR, which to his credit had barely been noticed at the time (see Dahlstrom, 1982). Second, his account requires that SR only occur in subordinating contexts. We have seen in this paper many

¹⁸I should mention that the first explicit mention of situation semantics interacting with switch-reference is a dissertation by Richard Lungstrum (1995). He argues that DS marks episode boundaries in narratives in Lakhota, and uses these marked boundaries to develop a theory about that tribe's structure of narratives. He does not develop a theory of switch-reference, or of situations. He adopts axiomatically the Barwise and Perry model of situations, claiming that SR picks out either a situation (\sim non-canonical) or its anchor (\sim canonical). He does not examine SS marking.

examples of SR in coordinating contexts; Roberts (1988) and Stirling (1993) point out even more. There is simply no binding relation between coordinated clauses.

Stirling 1993

Stirling's dissertation does take into account non-canonical SR, and coordination. She concludes that SR must have access to the discourse, and that it deals with eventualities.

The pivot selection is very simple: It's the eventuality introduced by the predicate. Stirling combines canonical and non-canonical SR by proposing that the pivot is always an eventuality structured to highlight certain of its parts. One of these is the Protagonist, a DP argument.¹⁹ This eventuality is inserted into the discourse, and Stirling employs a standard DRT model to explain how.

The selection method of the anti-pivot is not addressed in her system. Nothing in the DRT model ensures that the anti-pivot is the pivot of the previous clause. This makes her theory incomplete, but not necessarily invalid.

Her solution for the anaphoric step, however, is problematic. SR is an anaphoric condition between eventualities. SS is $e_1 = e_2$, DS is $e_1 \neq e_2$. That much is simple— the difficulty comes from how the eventualities' co-reference is determined. Stirling adopts a Unification Categorical Grammar approach where each eventuality has three 'index parameters' that determine its referent. These are the **Protagonist**, the Agent in the Amele language she focused on; the spatiotemporal **Location**, and the **Actuality**— if the eventuality is in the actual world or some other. Only when two eventualities agree on all three parameters do they co-refer.

There are two major problems with this. First, it makes incorrect predictions concerning non-canonical SS-marking. Under her system, it cannot occur, but we have seen NC-SS throughout the Kiowa data here. For example, let's recall our letter-writing case.

- (10) Kathryn gà= gút gàu Esther=àl gà= gút.
 K. [3s:3p]= write.PF **and.SS** E.=too [3s:3p] write.PF
 'Kathryn wrote a letter and Esther wrote one too.'

According to Stirling's system, SS marking would ensue only if the two pivots matched on all three parameters. The table in (41) shows that this is not the case— the two protagonists differ. Her system would

¹⁹The exact roles allowed to be a Protagonist vary cross-linguistically, hence the non-committal name.

predict obligatory DS-marking.

- (41) Eventuality index parameters:
- Protagonist(e_1) $\not\approx$ Protagonist(e_2)
 - Location(e_1) $\approx?$ Location(e_2)
 - Actuality(e_1) \approx Actuality(e_2)
- DS-marking! ($e_1 \neq e_2$)

Second, the configurational difference shows that we have to split canonical and non-canonical pivots, in contrast to her lumping them together. Her account does not explain why her parameters Location and Actuality are systematically ignored in subordinate contexts.

In summary, neither Stirling's nor Finer's theory can be extended to cover canonical and non-canonical SR. Nor can they handle both coordinate SR and subordinate SR. While Stirling's proposal does deal with non-DP SR-pivots, it cannot handle all attested types of SR.

7 Sketching out a complete theory

In this section I will sketch out a theory of switch-reference that can handle situation arguments while minding the configurational difference. The mechanism of switch-reference involves selecting a pivot, selecting an anti-pivot, and an anaphoric step relating the two.

7.1 Selecting the pivot

What can be an SR-pivot? As we saw in section 1.3, the canonical pivot is the highest argument, even if it is the Davidsonian event. SR is thus sensitive to height, either semantic or syntactic.

However, the pivot selection seems to have semantic, pragmatic, or discourse restrictions. For example, pivots must not be non-specific indefinites. Another that we have already discussed is that they must 'exist', they must be individuals. This requirement may be expressed as a condition that a pivot's situation argument be 'non-minimal'. A discourse requirement but it is that pivots seem to be topical in nature. We have seen that topic situations can be the pivot of SR. More importantly, topic situations are pivots when we are talking about them. My consultants said that you would use the NC-SR when you were discussing the plan, or the situation. The literature is full of similar reports.

It may be the case that these are not restrictions on SR's selection of pivots. Rather, it may simply be that pivots occupy some role in the semantics, and SR is sensitive to this role (or the syntactic position it fills). The restrictions are on that role, not SR itself. This suggestion is bolstered when we consider the restrictions on pivots; they correspond to those on a variety of objects that have been proposed to be the object of categorical judgment.

I will thus suggest that SR-pivots are simply objects of categorical judgment (a concept I will discuss below). This suggestion actually allows for two separate conceptions of SR. The first is that SR relates the objects of two 'adjacent' categorical judgments. The other is that SR relates the object of one categorical judgment to the adjacent *judgment*, not the adjacent pivot. I will lean towards the second option on grounds of parsimony, as it would eliminate the problematic anaphoric step, and make pivot selection less important. This idea is only suggested and needs more careful consideration, but seems very promising.

7.2 Thetic and categorical judgments

The distinction between thetic and categorical judgments originated in the 19th century (Brentano, Marty) as an alternative to Aristotle's universal subject-predicate logical structure. It only made it into modern linguistics when Kuroda (1972) suggested that the two judgments reflected two different syntactic structures. The original philosophy behind the distinction has been left behind, but the distinction itself has been applied to several different phenomena.

A categorical judgment involves pointing out an individual and ascribing a property to it. A thetic judgment merely offers a description.

(42) **Thetic:** [A dog is chasing a cat.]

(43) **Categorical:** [A dog] [is chasing a cat.]

In (43), the grammatical subject, *a dog*, is also an Object of the Categorical judgment (the OC). We get the sense that we are talking about that dog, whereas in (42), we are simply describing an informal situation. In English, there are different stress patterns; *A DOG is chasing a cat* is Thetic, while *A dog is chasing a CAT* is Categorical.²⁰ In Japanese, Kuroda (1972) argues, OC's are marked with the morpheme *-wa*, reflecting different syntactic structures.

²⁰The stress here is not as strong as emphatic stress.

- (42') **Thetic:** [Inu-ga neko-o oikakete iru.]
 (43') **Categorical:** [inu-wa] [neko-o oikakete iru.]

7.3 Properties of OCs

Kuroda notes that OCs do not have as wide a range of meaning as *ga*-marked subjects. They have to denote a nameable individual (this claim has been since weakened to ‘must not be specific indefinite’). Generic subjects are “naturally translated” with *wa*-marking. Also, OCs have a certain “aboutness” to them; a speaker points out an individual and says something about it.

The semantic properties of OCs were expanded by Ladusaw 1994, who derives Milsark’s generalization from the interaction of judgments and predicates.²¹ He argues that OCs cannot have weak construals. They must either denote an object or quantify over them; they cannot be nonspecific indefinite.

7.4 Correspondences between SR-pivots and OCs

7.4.1 Kiowa canonical SR-pivots

Canonical pivots in Kiowa bear the properties of OCs. First, they cannot have weak construal. In examples with indefinites, for example, I was unable to coax weak readings. Take this phrase with an indefinite pivot.

- (44) Hájél ∅= chán=è jé ém= kún+hâ.
 person.INDEF [3s] arrive.PF=**when**.DS all [3p:refl] dance+arise.PF
 ‘When someone showed up, everyone got up to dance.’

I offered two scenarios to consider. The first is a dance where the dancers are waiting for a certain dancer to show up. The second is one where nine people are there, but ten are needed to dance. As soon as anyone else shows, the dance can begin. My consultants found it natural to say (44) after the first scenario (“They’re waiting for that person.”), but didn’t like the second reading at all.

OCs must have a strong construal, so they should allow strong quantifiers and not weak ones. Canonical pivots in Kiowa can bear strong quantifiers, like universals.²²

²¹He does this by first separating properties (associated with ILPs) from descriptions (associated with SLPs). Categorical judgments attribute properties to individuals. Thus, properties are the basis of a categorical judgment, and cannot be that of a thetic one. The OC must be an actual object, not a description of an object. Since strong construals either denote an object or quantify over them, it follows that the subject of an ILP must have a strong construal. Now, the way that Ladusaw uses ILPs and the property/description distinction has caused problems, as McNally (1998) and Jäger (2001) have pointed out. I won’t be discussing that debate here.

²²Jäger 2001 claims that universally quantified OCs (he calls them topics) are degraded.

- (45) Jé á= hébà gàu ém= sáú.
 all [3p] enter.PF and.SS [3p:refl] sit.down.PF
 ‘Everyone came in and sat down.’

Other strong quantifiers like *most* weren’t tested; I don’t believe there is a lexical item corresponding to *most*. DPs with *many* can be pivots as well. In essence, under the idea that OCs must not be construed weakly, and the hypothesis that OCs correspond to SR-Pivots, we expect not to find any weak construal DPs as SR-Pivots. The data presented here are not fully conclusive, but I have yet to find any counterexamples in texts or in my fieldwork.

7.4.2 Choctaw Possessor raising

If SR-pivots are OCs, it would explain a difficult SR case from the Choctaw language (Muskogean, Oklahoma/Mississippi). Choctaw has a construction that Broadwell (1997, 2006) calls Possessor Raising. Possession can be expressed by a bare nominal inside a nominative-subject DP.

- (46) [John im-ofi'-at] illi-h
 John cl.3-dog-NOM die-TNS
 ‘John’s dog died.’

This possessor can be ‘raised’, however, and takes nominative case. The referent of this argument is reflected in the argument structure by a dative verbal prefix.

- (47) John-at im-ofi'-(at) im-illi-h
 John-NOM cl.3-dog-NOM dat-die-TNS
 ‘John’s dog died.’

The raised possessor can trigger SR-marking, as seen by the first reading of (48).

- (48) John-at ofi'-at im-ambiika-took [sa-kisili-tok-at]
 John-NOM dog-NOM III-sick-PAST 1sPP-bite-when.SS
 one: John_i’s dog_j was sick when he_i bit me.’
 two: John_i’s dog_j was sick when it_i bit me.’

The raised possessor *John* is the anti-pivot of the SS-marker; since the anti-pivot of another phrase is the pivot of its own, *John* would be an OC under the hypothesis here.²³

²³Note that there is a reported ambiguity here. The phrase has a second reading where the embedded pivot is the dog. I admit I cannot conclusively explain this, but before calling it a problem, we would need to see whether left-dislocated DPs are nominative-marked in Choctaw. If so, this may be a simple ambiguity between an Broad Subject and a CLLD topic– something shown to happen in Korean (Kim, 2007).

Similar phenomena in Hebrew and Japanese have been proposed by Doron and Heycock (2003) to involve OCs. DPs known as ‘Broad Subjects’ are nominative-marked DPs added to otherwise complete clauses.²⁴

(49) ruti yeʃ l-a savlanut
Ruti there.is to-her patience
‘Ruti has patience.’ (Hebrew)

(50) john-ga kurma-ga seibihuryoo na (koto)
John-NOM car-NOM ill-conditioned is (fact)
‘John’s car is ill-conditioned.’

Doron and Heycock note that broad subjects share the semantic restrictions on OCs that Ladusaw proposes. They behave like ILP subjects, that is, they cannot have a weak construal. Mass noun and bare plural broad subjects allow generic but not existential readings.

(51) [kafe tov] [ma’amidim oto li-rʃut ha-orxim ba-boker]
coffee good stand.CAUSE.3MP it to-disposal (of).the-guests in.the-morning
‘Good coffee (generic) is made available to the guests in the morning.’ (Hebrew)

(52) (hora asoko!) *[kuzira-ga] [o-ga mieru!]
oh over.there whale-NOM tail-NOM visible
Look over there! Whale’s tails (existential) are visible! (Japanese)

I don’t know the semantic restrictions on Possessor Raising in Choctaw, but I predict that they will resemble those of OCs.

7.5 Topic situations can be OCs as well

We saw in section 3 that topic situations can be SR-pivots. If we follow the hypothesis in this section, I am claiming they can be OCs. It is certain that topic situations marked by SR are what the respective sentences are about. My consultants said that you would use NCSS in (10) or in (??) when you were discussing a plan. In (10), the NCSS-marked case would have two conjoined clauses that we can informally schematize like this:

(53) a. [*s_{plan}*] [Kathryn wrote a letter]
b. [*s_{plan}*] [Esther wrote one too.]

²⁴They argue against Kuroda’s characterization of *wa*-marked OCs.

Judgment in (53a) involves pointing out the situation s_{plan} and ascribing to it the property *Kathryn wrote a letter*.

OC's must refer to individuals. Are plan situations individuals? A full theory of individuals is beyond the scope of this paper, but I sketch out some small reflections. I see no reason to exclude plans from the set of individuals. Individuals are nameable, and we can certainly name plans: military operations (Overlord, Desert Storm), set plays in sports (Student Body Left), and just general plans (Plan B) are a few examples. When one is speaking about a plan, it is a definite object. It either already exists and is unique, or is somehow salient.

This definiteness explains the fact noted by Dahlstrom (1982); Watkins (1993) and Lungstrum (1995): NCDS often occurs in narratives at the ends of 'episodes', or paragraphs. That is, the boundaries of sections of text are marked by NCDS-marking. Sentences that introduce episodes introduce a new non-minimal topic situation. DS-marking serves to highlight this. Marking novel topic situations with DS also explains why NCSS-marking is rare compared to NCDS. It is a basic pragmatic principle that two adjacent clauses tend to share the same topic. Since continuity is normal, speakers rarely feel the need to mark it. On the other hand, discontinuity is more worth mentioning, so its marking is much more prevalent.

Our hypothesis allows us to offer explanations of puzzling cases of NCSR. For instance, here is a curious case of non-canonical DS marking from a text in Watkins (1984):

- (54) $g\grave{e}g\acute{a}u$ $\acute{e}t=$ $d\grave{e}+m\grave{a}u-m\grave{a}u$ **$n\grave{e}g\acute{a}u$** $j\acute{e} \acute{a}=m\grave{a}ugy-\grave{o}p$ $\grave{e}=$ $th\acute{a}u$
 and.then.SS [1p.refl] sleep+lie.down-IMPF **and.then.DS** all 3s-grandchild-INV [1p] remain
 'So we would go to bed and all her grandchildren were there. (\approx all us grandchildren)'

Watkins suggests that the NCDS marking (highlighted here in boldface) is used because the narrator describes it as a stepping back from the scene by the narrator. However, it is more simply explained as a switch in topic situations. The DS-marking in (54) signals a shift from habitual (Grandmother would tell stories when were going to bed) to a specific story-telling. The narrator was setting the scene for the story-telling: All the grandkids were there. These kinds of scene-setting phrases describe a situation instead of an individual. That is, they arethetic. Thetic clauses have eventuality OCs; here it is the topic situation.

- (55) a. [s_1] [we would go to bed]
 b. [s_2] [all her grandchildren were there]
 c. $s_1 \neq s_2 \Rightarrow$ DS-marking

The difference in topic situation is what SR is marking here.

7.5.1 Events as pivots

Early on, I provided an example of SR in clauses with no DP-arguments. Here I repeat it, along with a case with coordination.

- (7) gí gǎu èm= kífǎu [héjǎu gǎ= hójê=è]
 early.morn [3s:refl] jump.up.PF still [3p] dark=WHEN.DS
 ‘He got up early in the morning when it was still dark.’ (Watkins, fieldnotes)
- (56) gǎ= hójê+ǎum-dè nǎu yǎ= fǒ+mǎuǎu-dèp.
 [3p] be.dark+become-IMPF and.DS [∅:3p:1s] see-have.trouble-IMPF
 ‘It was getting dark and I couldn’t see you.’ (Watkins, fieldnotes)

The clause with no DP arguments in (7); the one in (56) is an anti-pivot. The presence of SR indicates that the clauses represent categorical judgment. What is the OC? There may be no DP argument, but the predicate does have a Davidsonian event argument. This must be the pivot in (7) and the anti-pivot in (56). This claim has support in the literature. Jäger (2001) and Carminati (2002) show convincingly that Davidsonian events can be OCs. In fact, they argue that there is no actual distinction betweenthetic and categorical judgments– so-called thetics are merely categoricals with event OCs. Carminati provides experimental data showing that ‘expletive’ arguments are not semantically empty. In clauses where null subjects refer to an adjacent clause with an expletive argument and post-verbal subject, Italian speakers prefer the null subject to co-refer to the expletive argument. She proposes that the argument actually refers to the eventuality, and I agree. It is not clear at this point whether topic situation OCs lead tothetic judgment, but if so they may differ enough to indicate two types ofthetic judgments: event-based, and topic situation-based.

Embedded thetics with DP-arguments Sentences with DP-arguments can bethetic. One prediction this proposal makes is that embeddedthetic clauses will trigger event-based SR. They cannot trigger topic situation-based SR, because they don’t have topic situations. They cannot have DP-triggers, since DPs cannot be the OC of athetic clause. I couldn’t find any cases at all in texts, and did not test this in my fieldwork.

7.5.2 DP arguments

The selection of DP-arguments as SR-pivots observes a hierarchy: agent > dative > absolutive. As discussed before, it is not clear if this is a syntactic or a semantic hierarchy. In terms of OCs, though, it is odd; most

languages allow any argument– and even some non-arguments— to be OCs. However, other languages (like English) restrict what can be an OC in a similar way to SR. Perhaps this is just a product of cross-linguistic variation, or perhaps SR *does* restrict the OC.

7.6 Singling out the anti-pivot

No theory of switch-reference has yet figured out how to single out the anti-pivot. It does need singling out, because it would be the pivot of the previous or dominant clause were that clause to bear switch-reference. Since SR pivots are OCs, the SR morpheme needs to ‘reach back’ somehow and pick out the OC of the other clause.

Perhaps the reason why it is difficult for us to see how SR finds the anti-pivot is because we are looking at the problem the wrong way. I hold, along the lines of Jäger and Carminati, that all sentences involve categorical judgments. These judgments provide us with an extra tool to figure out how SR works. Traditionally, SR is thought to involve the pivot and the anti-pivot. The standard conception of DS marking is that the pivot is not identical to the anti-pivot.

$$(57) \text{ DS} = (\text{pivot A} \neq \text{pivot B})$$

But what if pivot identity is merely an epiphenomenon? What if instead, it’s the judgment that differs? As mentioned earlier, it could be that SR relates a pivot to an adjacent judgment. Since judgment B has to have a pivot, if pivot A cannot be the OC of judgment B, it cannot co-refer to pivot B, deriving the DS-effect.

$$(58) \text{ DS} = \neg ([\text{pivot A}] [\text{judgment B}])$$

This is a counter-intuitive idea, since it ignores the pivot completely. That is, the SR marker in clause B ignores the pivot of clause B, but not the judgment.

7.7 Linking the pivot with the anti-pivot: The anaphoric step

This anti-pivot based theory of switch-reference proposed here does away with the anaphoric step. The pivot doesn’t actually get involved, so there is no need to connect it to the anti-pivot. This makes the anti-pivot approach more parsimonious a theory than others. It remains to be seen, though, if what I have sketched out here leads to a complete theory of SR. There is also a need to explore what role judgments play

in the semantics, what syntactic constituents (if any) they correspond to, and the nature of the proposition expressed by the SR morpheme in (58). SR might turn out very useful for the investigation of this type of phenomenon.

8 Conclusion

Let me summarize by recapping the central argument of this paper. The first half of the paper focused on the claim that switch-reference can be sensitive to topic situations. In support of this I point out examples of switch-reference sensitive to time and space, two well-accepted properties of situations. I then demonstrate that situations do not have to be spatiotemporally contiguous, allowing SR to be sensitive to discontinuous situations. SR-sensitivity to topic situations requires that they be able to be non-minimal, a property independently ascribed to situations in other cases. SR sensitivity disappears in embedded contexts, a fact explained by the lack of topic situations in these contexts.

The second half explores what a theory of switch-reference should capture. To explain the selection of the pivot, I propose that SR-pivots correspond to objects of categorical judgment. Still, explaining anti-pivot selection remained elusive, and it wasn't clear how SR should deal with both. Usage of judgments might allow us to flip our conception of SR to one where SR 'carries' the anti-pivot and tells whether the next sentence's judgment is true of it.

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