Alternating conjuncts: the *to… to* construction in Russian and its crosslinguistic counterparts

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There exists a special type of coordinate constructions in some languages (including, but not limited to, Russian, some other Slavic languages, Greek and French) that requires that there be an alternating sequence of events introduced by the conjuncts. Such constructions are formed by attaching a quantifier-like element (*to*, which is originally a demonstrative, in Russian and Ukrainian; *čas* ('moment') in Bosnian/Croatian/Serbian; *mia* ('one.FEM.SG') in Greek; *tantôt*, a temporal adverb with various uses, in French, etc.) to each conjunct. I will uniformly refer to such constructions as TO-TO constructions. (1) is an example of a TO-TO construction in Russian:

(1) Maša **to** poët, **to** tancuet.
Masha TO sings TO dances
'≈ Masha is alternately singing and dancing.'

The task of giving a semantics to TO-TO constructions is faced with two major challenges:

- Division of labor: identifying the primitive elements of the complex meaning encoded in TO-TO constructions and their sources (semantics, pragmatics, world knowledge).
- Compositionality: figuring out how the elements of meaning come together compositionally.

A helpful strategy in tackling the two issues above is to compare TO-TO constructions to similar coordinate constructions containing different means of temporal quantification. Below I adduce one such comparison set for Russian in which various quantifiers are attached to each of the conjuncts. In (2)a–c the quantifiers are 'sometimes', an indeterminate pronoun base glossed as WHEN, and *to*, respectively; in (3) the quantifier is 'at least once', which is arguably the best approximation of simple existential temporal quantification (some word order and tense/aspect adjustments are also made in (3)). In all examples the target construction is embedded in the restrictor of a universal quantifier to check whether the inferences obtained are due to scalar implicatures, which normally don't arise in downward-entailing environments (Chierchia 2004):

(2) Na každom lyžnom kurorte, kotoryj poseŝajut…
on each ski resort which visit.IPFV.PRS.3PL

a. **inogda** amerikanskie, (a) / (* i) **inogda** nemeckie turisty
sometimes American CONJ-ADV and sometimes German tourists

b. **kogda** amerikanskie, (a) / (* i) **kogda** nemeckie turisty
WHEN American CONJ-ADV and WHEN German tourists

c. **to** amerikanskie, (a) / (* i) **to** nemeckie turisty
TO American CONJ-ADV and TO German tourists

…, ljudi sčastlivy.
people happy

(3) Na každom lyžnom kurorte, kotoryj **xotja by raz** posetili amerikanskie,
on each ski resort which at least once visit.PFV.PAST.PL American

(* a) / (i) **xotja by raz** nemeckie turisty, ljudi sčastlivy.
ADV-CONJ and at least once German tourists people happy

'At each ski resort that (2)a,b is sometimes visited by American, (and) sometimes by German tourists / (2)c is alternately visited by American and German tourists / (3) has been at least once visited by American, (and) at least once by German tourists, people are happy.'

All examples in (2) come with an inference that for a ski resort to satisfy the restrictor there have to be separate (and possibly multiple) events of American and German tourists visiting it, i.e. ski resorts that are only visited by American and German tourists coming together are excluded. (3) doesn't seem to impose such a requirement, i.e. a single event of American and

German tourists visiting a ski resort together is enough for that ski resort to satisfy the restrictor. The contrast is reinforced by the fact that the examples in (2) are all compatible with the adversative (contrastive) conjunction *a*, but not the standard one *i*, while in (3) it's the other way round. I conclude from that that all examples in (2) contain a silent focus-sensitive exhaustivity operator *Exh*, whose semantics is similar to that of *only* (with some differences; for an overview of *Exh* operators in the literature see (Schlenker 2015)), while (3) doesn't.

The distinctions among the examples in (2) are subtler; the potential points of divergence are:
(i)   whether events of contrasting kinds need to be temporally disjoint;
(ii) whether, furthermore, no temporal overlap at all is permitted among such events;
(iii) whether the events have to be arranged in an alternating sequence.

While (ii) and (iii) are likely too strong for (2)a,b, (i) seems to apply, i.e. a ski resort where visits by American and German tourists always perfectly overlap temporally is excluded, but partial overlap even of all such visits is allowed. There are at least two ways to derive that:

A. The *Exh* operator applies at the level of event quantification (I assume the version of event semantics developed in (Champollion 2015), in which existential quantification over events is built into lexical entries of predicates). Informally, for the left conjunct in (2) we get something like *There is an event which is only an event of **American** tourists visiting*, i.e. no other event predicate from the appropriate alternative set, such as being an event of German tourists visiting, is true of that event. The inference that no perfect temporal overlap among events of contrasting kinds is allowed is due to a bias in which events that perfectly overlap temporally (and spatially in this specific example) tend to be perceived as a single event, which results in a seeming violation of the condition imposed by *Exh*.

B. The *Exh* operator applies at the level of temporal quantification. Informally, for the left conjunct in (2) we get something like *There is a time interval which is only a runtime of an event of **American** tourists visiting*, i.e. no other event from the alternative set has that time interval as its runtime. As a result, no total overlap is permitted, but partial overlap is fine.

The TO-TO construction in (2)c, in its turn, seems to require that there is a sequence of non-overlapping alternating events introduced by the conjuncts, i.e. both conditions (ii) and (iii) hold. The total non-overlap requirement can be derived within option B above by tweaking the exact conditions imposed on time intervals; for example, one could use the notion of containment rather than identity, essentially ending up with something like *There is a time interval which only contains a runtime of an event of **American** tourists visiting* for the left conjunct in (2) (the actual implementation is much less straight-forward, though, because of the interaction with the sub-interval property of predicates or lack thereof). The sequence requirement can be derived by positing a covert Distributive operator that distributes the property of containing at least one event of each kind over parts of an implicit or explicitly provided time interval; the parts are determined via covers (Gillon 1987) or partitions (covers whose parts cannot overlap). The exact technical implementation of the idea is more complicated than that, but an important advantage of this approach is that by manipulating the properties of the covers involved we might be able to derive the differences in arrangement of events among the examples in (2).

More detailed empirical work, however, is required to establish the exact differences in inferences among the examples in (2) and their source.

Selected references: Champollion, L. 2015. The interaction of compositional semantics and event semantics. *L&P* 38:31–66. Chierchia, G. 2004. Scalar implicatures, polarity phenomena, and the syntax/pragmatics interface. In *Structures and beyond*, ed. A. Beletti, 39–103: OUP. Gillon, B.S. 1987. The readings of plural noun phrases in English. *L&P* 10:199–219. Schlenker, P. 2015. To appear in *Cambridge Handbook of Formal Semantics*, eds. M. Aloni and P. Dekker. Preprint from http://ling.auf.net/lingbuzz/002545.