The irreality of alternatives

Towards a typology of disjunction*

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This paper investigates the variety of morphosyntactic strategies that languages use to encode the relation of alternative between states of affairs. A semantic definition of disjunction will be given, based on the notion of alternative meaning proposed by Dik 1968. After defining the functional domain under investigation, it will be shown that languages encode the notion of alternative between states of affairs in different but non-random ways. Specifically, many languages do not have a disjunctive connective, but rather encode the concept of 'alternative' by means of the same strategies used for other irrealis domains, such as dubitative, hypothetical or interrogative. Two main implicational patterns will be identified, which will prove irreality to be a basic aspect of disjunction.

1. Introduction

This paper examines disjunctive clause-combining constructions from a cross-linguistic perspective and makes two main generalizations: (1) constructions lacking a disjunctive connective require some overt 'irreality' marker (expressions encoding possibility, future, uncertainty, question, or similar notions), and (2) if a language uses a disjunctive connective in interrogative disjunction, it will also use a disjunctive connective in standard disjunction (but not vice versa: some languages use juxtaposition in interrogatives, but a disjunctive connective in standard disjunction).

By disjunctive construction is meant here any dedicated morphosyntactic construction used for encoding an alternative relation between two states of affairs[1] (henceforth SoAs). The term 'alternative relation' refers to the meaning level and defines the type of semantic relation investigated in this work. The term 'disjunction', by contrast, refers to the expression level, that is, how each language encodes the alternative relation between two SoAs. Whereas the concept of alternative is invariant, disjunction is characterized by a high degree of cross-linguistic variation.

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The use of a specific connective particle equivalent to English *or* is just one of the many possible disjunctive strategies we can find across languages. In Wari', for instance, there is no disjunctive connective and the meaning of alternative can be conveyed in two ways. The first possible strategy is shown in example (1a), where the two states of affairs are juxtaposed and each one is introduced by a conditional particle *mo*, whose meaning is similar to that of English *if*. Example (1b) shows the second strategy: here again the two states of affairs are juxtaposed, but instead of a conditional particle, in each of the two states of affairs we can see a dubitative adverb *'am* whose meaning is 'perhaps'.

(1) Wari', Chapacura-Wanam (Everett and Kern 1997: 162)

a. ***mo*** *ta* *pa' ta'* *hwam ca*,
COND realis.future kill 1SG:realis.future fish 3SG.M
mo *ta* *pa' ta'* *carawa ca*
COND realis.future kill 1SG:realis.future animal 3SG.M
'Either he will fish or he will hunt.' (lit. 'if he (says) "I will kill fish", if he (says) "I will kill animals".')

b. ***'am*** *'e'* *ca* ***'am*** *mi' pin* *ca*
perhaps live 3SG.M perhaps give complete 3SG.M
'Either he will live or he will die.' (lit.'perhaps he will live, perhaps he will die')

The behavior of Wari' is not an isolated case, since other languages without a disjunctive connective use similar irrealis markers to allow the inference of an alternative relation. As will be made clear in Section 3, by *disjunctive connective* is meant here any dedicated marker which specifically encodes the relation of alternative. An *irrealis marker*, on the other hand, is a marker that encodes the irreality of the SoA in which it occurs (it can be a dubitative adverb, a hypothetical or interrogative mood, a question marker, a conditional conjunction and so on, see Section 3.2).

A glance at what happens in the languages of the world reveals two major significant phenomena: (i) the relation of alternative is expressed by a variety of different morphosyntactic strategies in individual languages; (ii) languages without a disjunctive connective express the relation of alternative with the same strategies they use to convey other meanings belonging to the overall domain of irreality. Yet, none of these facts has been investigated in detail in the cross-linguistic literature on coordination (Longacre 1985, Mithun 1988, Stassen 2001, Wälchli 2005, Haspelmath 2006).

This paper will explore the various means by which the relation of alternative between SoAs is expressed in the world's languages, based on a 60-language sample (see Appendix). In particular, attention will be focused on whether the

alternative meaning is overtly encoded by a disjunctive connective or whether it is implicit and thus inferred from an irrealis context.

The paper is organized as follows. In Section 2 the semantic definition of alternative relation is provided, to establish language-independent criteria for the identification of the object of analysis in any language, regardless of particular morphosyntactic properties.

In Section 3 we will go through the parameters of analysis used for each attested construction: (i) *presence vs. absence* of some disjunctive connective, that is, "some overt relational marker" (Wälchli 2005) "specifically encoding the semantic relation" (Prandi 2004: 40–43), and (ii) *presence vs. absence* of some irrealis marker, that is, some marker encoding possibility, future, uncertainty, questions, etc.

In Section 4 we will see how these two parameters interact and we will lay out a typology of the disjunctive constructions attested in the sample. This typology will reveal interesting implicational regularities behind the cross-linguistic variation. Specifically, it will be shown that if a disjunctive construction does not involve any overt disjunctive connective, then both of the clauses expressing the relevant SoAs will be overtly marked as irrealis. Moreover, in a given language, if an overt disjunctive connective is available to convey an alternative where a choice is needed (*interrogative alternative relation*, see Section 2), a disjunctive connective will also be available to convey an alternative where no choice is needed (*standard alternative relation*, see Section 2).

Section 5 will focus on the major role that irreality plays in the notion of alternative relation between SoAs. What evidently is relevant for languages is the 'uncertainty' and the characteristically possible, rather than categorical, nature of the SoAs involved. As will be made clear in the course of the paper, the irreality of two alternative SoAs is a consequence of the semantic definition of alternative relation.

After a glance at diachrony in Section 6, we will turn in Section 7 to the motivation underlying the regularities analyzed in Section 4. The notion of possibility will be identified as the basic concept that languages need to encode in order to convey an alternative relation between SoAs. The principle of economy will then explain why certain construction types and certain combinations of construction types never occur.

2. The alternative relation

Even though disjunction is an object of analysis of Boolean logic,[2] logic can hardly be the basis for a semantic analysis of disjunctive constructions in natural language, as Dik (1968: 274–277) and Lakoff (1971: 142) have thoroughly and convincingly argued. The relation between the semantics of Boolean disjunction and

the semantics of disjunctive constructions in natural language is an interesting and complicated topic, but it will not be addressed here.

As previously noted in the Introduction, the term disjunction identifies any construction used to express a specific type of semantic relation, namely the alternative relation between two SoAs; the two terms 'disjunction' and 'alternative relation' indicate the expression level and the meaning level, respectively. In order to establish whether a given construction can be considered a disjunctive one, a clear definition of what is an alternative relation is necessary.

The definition of alternative relation, which constitutes the tertium comparationis of this work, is based on Dik's and Lakoff's idea that the speaker's intent, in using a disjunctive construction, is to convey a set of substitutable possibilities. What is defined here is the concept of parallel alternative, where the two possibilities stand on the same level and there is no preference for either of the two. As will be made clear in the explanation of the definition, asymmetric alternatives will not be considered, in order to narrow the scope of this study and focus on the symmetric instances.

A relation of alternative can occur between entities as well ('I want to eat some pasta or a pizza'; NP coordination, see Haspelmath 2004). However, only the alternative relation between SoAs will be examined in this work. I propose to define the alternative relation between two SoAs as follows:

> *An alternative relation is the semantic relation which obtains between two or more linked clauses expressing SoAs that constitute non co-occurring alternatives.*
> The two SoAs:
> [a] are "in the same way relevant to the further content of the sentence or to the particular context of use" (Dik 1968: 271) (*functional and semantic parallelism*, Haspelmath 2004).
> [b] are both equally possible: each of them, taken individually, has the same possibility of occurrence.
> [c] denote contrastive situations and are potential substitutes for each other.

Let us now examine in detail each of the three requirements [a–c] which are necessary in order for an interclausal relation to be considered one of alternative.

The functional parallelism in condition [a] in the above definition is characteristic of all symmetric interclausal relations, that is, those relations where neither of the two SoAs is presented in the perspective of the other (cf. Langacker 1987 and Cristofaro 2003). Such relations, besides alternatives, also include the relations of combination and contrast, which are expressed by conjunctive and adversative constructions respectively (see Mauri 2006).

Condition [a] excludes cases where the two SoAs constitute alternatives, but are not functionally equivalent with respect to further content. For instance, cases

where two alternative SoAs have different illocutionary force will not be considered, because they show a functional asymmetry (see examples 2 and 3).

(2) *Shall we go to the cinema tonight? Otherwise we could also go for a walk in town.*

(3) *We are going to the restaurant. Or shall we go somewhere else?*

More generally, if the first SoA is presented with no alternative, and then the alternative is presented as a sort of afterthought (a 'second choice' suggestion), we are dealing with two distinct sentences expressing two distinct SoAs and there is no single sentence which expresses the alternative as such. The fact that the two clauses may have different illocutionary force (and hence different functions) is a consequence of their mutual independence.

Condition [b] in the definition points to another parallel property of the alternative relation: both SoAs need to have an equal possibility of occurrence. Therefore, cases where one of the two SoAs is very unlikely to happen (ex. 4) will not be taken into consideration, because here the function of the whole construction is not to offer an alternative, but rather to reinforce the probability of the only possible/desired SoA. In (4), for instance, the unlikely event of suicide is presented just to reinforce the wish of going to the party.

(4) *I have to go to the party tonight or I'll kill myself.*

Finally, condition [c] in the definition is different in nature from the previous two, since it has to do with the more general internal semantic coherence of the construction. In order to be real alternatives, two SoAs need to be presented as valid substitutes for each other. This means that the SoAs denote contrasting situations (ex. 5), they have some common denominator with respect to which they stand in a paradigmatic relation, and they are not expected to co-occur (i.e. they will happen one at a time, or only one will happen at all).

(5) * *Tonight I'm not going out or I'm staying at home.*

The sentence in (5) does not make any sense: the two SoAs denote two non-contrasting situations, and this is contradictory to the alternative relation conveyed by the disjunctive connective *or*.

Before moving to the attested disjunctive constructions, let us consider a further semantic distinction. As Dik (1968: 276) puts it, the *manner* in which the alternative is presented determines a basic distinction that languages seem to encode: namely, the alternative relation can be 'either A or B' or 'either A or B, which one?'. In the first case the two SoAs are simply presented as alternatives, whereas in the second case the two SoAs are presented as alternatives AND there is a need or request for a choice between the two.

This distinction can be seen in ex. (6) from Finnish:

(6) Finnish, Finnic, Uralic (Jenni Ylikoski, p.c.)
a. *joskus ovi avaut-ui **tai** ikkuna*
sometimes door open-3SG.PRF **ALTNS** window
paiskaut-ui kiinni
become-3SG.PRF closed
'Sometimes a door opened or a window slammed.'
b. *mene-mme-kö koulu-un huomenna **vai** jää-mme-kö koti-in*
go-1PL-Q school-ILL tomorrow **ALTNi** stay-1PL-Q home-ILL
'Do we go to school tomorrow or do we stay at home?'

In ex. (6a) no choice is needed between the two SoAs, since the two alternatives are simply presented as two hypotheses: *tai* always conveys an alternative relation where a choice is *not* essential and therefore it is glossed ALTNs, which stands for 'standard alternative relation'. In (6b), on the other hand, the connective particle *vai* is glossed ALTNi, which stands for 'interrogative alternative relation', because it always conveys an alternative relation plus the immediate need or request for a choice between the possibilities.

The glosses used in ex. (6) recall the terminology used by Haspelmath (2007): he calls *standard disjunction* any construction which conveys an alternative relation where the choice is irrelevant, and *interrogative disjunction* any construction which conveys an alternative relation where a choice is needed.

As we have briefly seen, the morphosyntactic encoding of an alternative relation between SoAs shows great cross-linguistic variation. Any morphosyntactic construction used exclusively to encode an alternative relation between clauses, both when a choice is needed and when a choice is not needed, is said to be a **disjunctive construction**, regardless of its specific formal features. In what follows all the disjunctive constructions attested in the sample will be analyzed and systematically compared. Let us now turn to the parameters used in the analysis.

3. The morphosyntactic encoding of the alternative relation: Parameters of analysis

The variety of morphosyntactic strategies attested in the sample can be systematically analyzed in terms of two parameters: (i) presence vs. absence of some disjunctive connective, and (ii) presence vs. absence of some irrealis marker. As we will see, the two parameters are closely interconnected with each other. Let us first of all look at each parameter and then move to the construction types identified in the sample.

3.1 Presence of disjunctive connectives

The first parameter has to do with the presence vs. absence of one or more overt connectives which specifically encode the alternative relation: such overt connectives are called *disjunctive connectives*.

Disjunctive connectives are attested, for instance, in the European languages, where the alternative relation is encoded by connectives like Italian *o*, French *ou*, German *oder* and so on (see ex. 7 and 8).

(7) Italian, Romance, Indo-European
Per pranzo prendiamo un panino ***o*** *andiamo in mensa*
for lunch take:IND.PRS.1PL a sandwich **ALTN** go.IND.PRS.1PL in mensa
'For lunch we'll have a sandwich or we'll go eat in the mensa.'

(8) French, Romance, Indo-European
Il a attendu le bus ***ou*** *il a*
3SG AUX.PRS.3SG wait.PTCP:PST the bus **ALTN** 3SG AUX.PRS.3SG
appelé un taxi
call.PTCP:PST a taxi
'He waited for the bus or he called a taxi.'

There are also cases, like Polish, Finnish and Basque, where there are two specific disjunctive connectives, one for standard alternative relations and the other for interrogative alternative relations (ex. 9).

(9) Polish, Slavic, Indo-European (Agnieszka Latos, p.c.)
a. *Zazwyczaj piszę* ***lub*** *czytam aż do późna*
usually write.PRS.1SG **ALTNS** read.PRS.1SG until to late
'Usually I write or I read until late.'
b. *Idziemy jutro do szkoły* ***czy*** *zostajemy w domu?*
go.PRS.1PL tomorrow to school **ALTNi** stay.PRS.1PL at home
'Do we go to school tomorrow or do we stay at home?'

The use of overt disjunctive connectives is widespread outside Europe, too. Example (10) from Marathi illustrates the two possible types of alternative relation. In (10a) no choice is needed and the specific connective used to convey this type of relation is *kīmwā*, whereas in (10b) the alternative requires a choice and the obligatory connective is *kī*.

(10) Marathi, Indo-Iranian, Indo-European (Pandharipande 1997: 162–163)
a. *madhū āītSyā śuśruṣesāṭhī sutṭī gheīl*
Madhu mother:GEN looking.after.for leave take:FUT:3SG
kīmwā/**kī tilā hɔspitalmadhe ṭthewīl*
ALTNS 3SG.ACC hospital:in keep:FUT:3SG
'Madhu will leave to take care of his mother or keep her in the hospital.'

b. *to bādzārāt gelā **kī**/*kīmwā gharī gelā?*
3SG market.LOC go:PST:3SG.M **ALTNi** home:LOC go:PST:3SG.M
'Did he go to the market or did he go home?'

An alternative relation between SoAs, however, can also be expressed by constructions where the alternative itself is not overtly signalled and where no disjunctive connective is used. These constructions are said to be disjunctive, since they are systematically used to express an alternative between SoAs, but they leave the alternative relation implicit. This happens quite frequently in the sample.

In example (11) from Hakha Lai, for instance, the interrogative alternative relation is expressed by the simple juxtaposition of interrogative clauses. Each clause is internally marked with the question particle *=maá*, whose function is to change a declarative into an interrogative clause. In this construction the alternative relation is not overtly encoded, but is inferred from the sequence of questions.

(11) Hakha Lai, Tibeto-Burman (Peterson and VanBik 2004: 352)
*ʔaa ʔa-siì-**maá** ʔa-sií=ʔaʔ tsùn suy hlayhlaak*
INTERJ 3SG.SBJ-be1=**Q** 3SG.SBJ-be2=LOC DEIC gold ladder
*thlaak=**maá** na-duʔ ŋuùn hlayhlaak thlaak=**maá***
drop2=**Q** 2SG.SBJ-want silver ladder drop2=**Q**
*na-duʔ thiàr hlayhlaak thlaak=**daʔ** tiaʔ khàn*
2SG.SBJ-want iron ladder drop2=**INT** QUOT DEIC
làŋʔaak-pìì=niʔ tsùn ʔa-vón-hàl ʔàn-tií
raven-AUG=ERG DEIC 3SG.SBJ-DIREC-ask$_2$ 3PL.SBJ-say
'"Ah, is that so? If that's the case, do you want me to drop a gold ladder, a silver ladder or an iron ladder?" the great raven asked her, they say.' (lit. 'Ah, is that so? If that's the case, do you want me to drop a gold ladder? Do you want me to drop a silver ladder? Do you want me to drop an iron ladder?' the great raven asked her, they say.)

Other languages express the standard alternative relation by juxtaposing two declarative clauses, each of which contains a dubitative adverb meaning 'perhaps'. Let us consider an example from Mangarayi:

(12) Mangarayi, Gunwingguan, Australian (Merlan 1982: 39)
***maŋaya** ja-ø-ṇiŋa-n **maŋaya** dayi*
perhaps 3-3SG-come-PRS **perhaps** NEG
'Perhaps he'll come, perhaps not.' (i.e 'he may or may not come')

As Merlan (1982: 33) points out, in Mangarayi there is no overt expression which directly corresponds to English *or*, neither at the phrase level nor at the clause level. Consideration of alternatives is often expressed by sequences with *maŋaya* 'perhaps'. This adverb, though necessary in order to infer an alternative relation,

cannot be considered a disjunctive connective, since it also occurs when only one alternative is presented.

This option seems to be available in all languages, as can be seen from the English translation in (12). However, in English it is also possible to use the disjunctive connective *or*, which is indeed the most widespread and normal disjunctive strategy. In Mangarayi, the juxtaposing construction is the only disjunctive strategy available.

3.2 Presence of irrealis markers

The second parameter identifies two types of disjunctive constructions. On the one hand, there are disjunctive constructions which are overtly marked as irrealis, as in examples (11) and (12), where the question particle in Hakha Lai and the dubitative adverb in Mangarayi overtly signal the irrealis status of the involved propositions. On the other hand, there are disjunctive constructions where the irrealis status is not overtly marked. As we will see from the examples in this section, this is the case of some English disjunctive constructions, where the presence of the disjunctive connective *or* establishes the alternative relation and the involved propositions are not overtly marked as irrealis, but their reality value is rather left unspecified.

Before moving on to examples, the concepts of realis vs. irrealis value and realis vs. irrealis markers will be defined. The concept of reality value is usually discussed under the complex rubric of modality, whose delimitation is still a matter of dispute (see Bybee, Perkins, and Pagliuca 1994).[3] I define as the *reality value* of a given proposition the actuality status of the SoA it describes, that is to say, whether it is realized or not. Following Elliott (2000: 66–67), it is possible to distinguish between realis and irrealis propositions:

- A proposition is said to be **REALIS** when it asserts that a SoA is an 'actualized and certain fact of reality' (Elliott 2000: 66).
- A proposition is said to be **IRREALIS** when 'it implies that a SoA belongs to the realm of the imagined or hypothetical, and as such it constitutes a potential or possible event but it is not an observable fact of reality' (Elliott 2000: 67).

Irrealis propositions belong to the domains of imagination, possibility, wish, interrogation, necessity, obligation and so on, where a given SoA is presented as not (yet) realized, or where there is no certainty about its occurrence. Other terms have been used to label similar distinctions: Lyons (1977: 796), for instance, speaks of 'factive' and 'non-factive' utterances, whereas Palmer (1986: 17–18) uses the labels 'factual' and 'non-factual'. All these terms, like the 'realis' and 'irrealis' distinction just identified, refer to the functional level, not to the structural one.[4]

On the structural level we define as

– '**Realis markers**' all the morphosyntactic means (adverbs, sentence particles, verbal forms) which specifically encode the realis value of a given SoA.
– '**Irrealis markers**' all the morphosyntactic means (adverbs, sentence particles, verbal forms) which specifically encode the irrealis value of a given SoA.

The reality value does not have a homogeneous formal realization across languages. As Bybee, Perkins, and Pagliuca (1994: 238) show, if this distinction is formulated with reference to a binary morphosyntactic correspondence, it can hardly be argued to be universal. It is in fact very common to find languages which have many different ways of marking both the realis and the irrealis domain.

Elliott (2000: 80) speaks of the reality status in terms of a grammatical category which is 'realized differently in different languages'. There are languages which obligatorily mark the reality status by means of a comprehensive mood system, others where the system is partial and the reality status needs to be indicated only in specific syntactic contexts, and finally there are languages like English, where there are no dedicated syntactic constructions to mark the reality status, but it is 'realized periphrastically' (Elliott 2000: 80).

The reality value of a given proposition may also remain unspecified. There are cases where no specific verbal forms and no modal particles or adverbs are used, and the construction can be used in both realis and irrealis contexts (e.g. the present tense of the indicative mood in Italian, see example 19). These unspecified cases are normally interpreted as realis (the assertion of an actually occurring event being the most frequent situation, Palmer 1986: 17–18); an irrealis interpretation is usually imposed by the context or by an interclausal relation.

Depending on the presence vs. absence of an explicit marker expressing the SoA's reality value and on the contexts in which the specific verbal form may occur, it is possible to distinguish between constructions which are overtly marked as realis (13a), overtly marked as irrealis (13b) and unspecified (see 18a below).

(13) Bukiyip, Kombio-Arapesh, Torricelli (Conrad and Wogiga 1991: 282, 102, cited in Elliott 2000: 63)
  a. *m-**a**-lpok*
     1PL-R-fight
     'We are fighting/we fought.'
  b. *m-**u**-lpok*
     1PL-IRR-fight
     'We will fight.'

It is striking that none of the disjunctive constructions attested in the sample is overtly marked as realis. In English, too, the overt assertion of two alternative

SoAs as realis would sound rather odd; a sentence like 'Tonight I will *certainly* go to the cinema or I will *certainly* stay at home' doesn't seem to make sense. As will be argued in Section 5, this regularity reveals a close connection between the alternative relation and the irrealis value of the involved propositions.

What is relevant for this survey, accordingly, is the presence vs. absence of irrealis markers within a given disjunctive construction. Two disjunctive construction types can thus be identified by this parameter: disjunctive constructions with irrealis markers (overtly marked as irrealis), and constructions without irrealis markers (where the reality value is left unspecified).

Let us now consider an example of a construction with an irrealis marker. In Tauya, one possible way of marking the irrealis value of a proposition is by means of a verbal suffix. In ex. (14) we see a standard disjunctive construction where each proposition is marked with the dubitative suffix *-rafu*, whose main function is to express uncertainty.

(14) Tauya, Brahman, Trans-New Guinea (MacDonald 1990: 139)
tei-sa *yate-amu-**rafu**-ʔa* ***pe*** *tufuma-sa*
Teri-ADESS go-1SG-FUT-**DUB**-IND **ALTN** Tuguma-ADESS
*yate-amu-**rafu**-ʔa*
go-1SG-FUT-**DUB**-IND
'Maybe I'll go to Teri or maybe I'll go to Tuguma.'

The disjunctive construction in (14) contains the disjunctive connective *pe*, which encodes the alternative relation, and additionally each SoA must be overtly marked as irrealis by the verbal dubitative suffix *-rafu*. Example (15) shows the Tauya disjunctive construction used to convey an interrogative alternative relation, where each SoA must be in the interrogative mood:

(15) Tauya, Brahman, Trans-New Guinea (MacDonald 1990: 139)
ne-ra *ʔini-a-nae* ***pe*** *ni-a-nae*
3SG-TOP sleep-3SG-Q **ALTN** eat-3SG-Q
'Did he sleep or did he eat?'

Here, too, the construction has overt markers for its irrealis value, now signalled not by the verbal suffix *-rafu*, but by the interrogative suffix *-nae*. What is questioned is by definition not asserted as occurring or as having occurred, and is therefore irrealis.

In fact Tauya disjunctive constructions require each SoA to be marked either with the dubitative suffix or with an interrogative marker, in order to convey respectively a standard or an interrogative alternative relation. The Tauya disjunctive connective *pe* cannot occur linking overtly realis or unspecified propositions (MacDonald 1990: 139–142).

Before proceeding to constructions without irrealis markers, some remarks on interrogative disjunction are necessary. Not every language has specific question particles or interrogative suffixes like Tauya (ex. 15) and Hakha Lai (ex. 11), but it can be argued that every language distinguishes between interrogative and declarative by means of some interrogative marker, which may be a particle, interrogative mood, word order inversion or simple intonation (which is probably universal, Givón 1990: 786).

Since the content of a question is by definition not asserted as a certain fact of reality, it follows that the interrogative form always implies the irrealis value of the questioned SoA, and that interrogative markers can be considered, in this respect, irrealis markers. Therefore, since the interrogative alternative relation is always expressed by an interrogative construction, we can conclude that interrogative disjunctive constructions are always overtly marked as irrealis.

Let us now consider two examples of interrogative disjunctive constructions with different irrealis markers: the interrogative intonation in Italian (16) and the interrogative marker *-ka* in Japanese (17) (the interrogative disjunctive connective *soretomo* in (17) is optional and can easily be left out.)

(16) Italian, Romance, Indo-European
*Domani andiamo a scuola **o** restiamo a casa?*
tomorrow go.IND.PRS.1PL LOC school **ALTN** stay:IND.PRS.1PL LOC home
'Are we going to school tomorrow or are we staying home?'

(17) Japanese (Yoko Nishina, p.c.)
*gakkoo-e iki-masu-**ka** **(soretomo)** ie-ni i-masu-**ka***
school-ALL go-HON-**INT** (**ALTNi**) house-LOC be-HON-**INT**
'Do we go to school or do we stay home?'

By contrast, some standard disjunctive constructions show no restrictions concerning the explicit coding of each SoA's reality value, which can be either overtly marked or left unspecified, without compromising the general alternative reading.

Let us now consider two examples from English (18) and Italian (19), where the alternatives are expressed by clauses in the indicative mood, which is the most usual way of reporting SoAs in both languages and can be used to describe both realis and irrealis SoAs. In (18a) and (19a) the constructions do not have irrealis markers, whereas in (18b) and (19b) the irrealis value of the alternatives is overtly marked by a modal verb (*may*) and by two dubitative adverbs (*forse* and *magari*, both meaning 'perhaps'), respectively. In (18a–b) and (19a–b) the alternative reading indicates that the speaker makes a hypothesis about what is going to happen, or a conjecture about what has actually happened, and he imagines two possibilities, without knowing or caring which one actually occurred or is going to occur.

(18) English
a. I take the bus **or** I go by bike. → *the SoAs are not overtly marked as irrealis (unspecified reality value).*
b. I *may* take the bus **or** I *may* go by bike. → *the SoAs are overtly marked as irrealis*

(19) Italian, Romance, Indo-European
a. *Dopo il lavoro* ***o*** *è andato*
after the work **ALTN** be(AUX).IND.PRS.3SG go.PTCT.PST
a casa ***o*** *ha fatto*
ALL home **ALTN** have(AUX).IND.PRS.3SG do.PTCP.PST
prima un po' di spesa.
before a little of shopping
'After the work, he went home or he did some shopping first.'
b. *È tutto bagnato in terra.* ***Forse***
be.IND.PRS.3SG all wet in ground **perhaps**
è piovuto ***o*** ***magari***
be(AUX).IND.PRS.3SG rain:PTCP.PST **ALTN** **maybe**
hanno lavato le strade
have(AUX).IND.PRS.3PL clean:PTCP.PST the streets
'It's all wet on the ground. Perhaps it has rained or maybe they have cleaned the streets.'

In the next section we will see how the two parameters, presence of disjunctive connectives and presence of irrealis markers, interact in the constructions attested in the sample.

4. Towards a typology of disjunction

First of all a brief methodological note will be made about the sample. Languages were selected so as to obtain a *variety sample*: this means that my central aim was to cover in so far as possible the whole range of disjunctive constructions that can be found across languages. However, no specific algorithm (like that suggested by Rijkhoff, Bakker, Hengeveld, and Kahrel 1993) was followed in the choice of languages, and the availability of good descriptive grammars played a major role; therefore the sample is essentially a convenience sample.

In order to maximize the degree of internal diversity in the sample, geographically and genetically unrelated languages were chosen. Languages from different families were analyzed, trying to cover at least the main ones, and from all over the world, trying to limit the number of adjacent languages and not to exclude large parts of the globe.

Data from 60 languages were collected by means of reference grammars, and, wherever possible, questionnaires filled out by native speakers.[5] Despite the attempt to build a balanced sample, the languages of Europe ended up being better represented than the others, mainly because of the availability of many good descriptions and many native speakers for first-hand data (see detailed information on the language sample at the end of the paper).

Let us now consider what types of disjunctive constructions are attested in the sample (Section 4.1), and how the attested constructions are combined within each language in the encoding of standard and interrogative disjunction (Section 4.2).

4.1 Construction types

Based on the four possible combinations of *presence vs. absence of disjunctive connectives* and *presence vs. absence of irrealis markers*, there are four possible types of disjunctive constructions: constructions with both disjunctive and irrealis markers, constructions with neither disjunctive nor irrealis markers, constructions with a disjunctive connective but without any irrealis marker, and finally constructions without any disjunctive connective but with some irrealis marker (symbols in the table: + = attested, – = not attested).

(20)

	Presence of disjunctive connectives	**Absence** of disjunctive connectives
Presence of irrealis markers	+	+
Absence of irrealis markers *(not attested)*	+	–

Of these four types of disjunctive constructions, one is not attested: there are no disjunctive constructions having neither disjunctive connectives nor irrealis markers. This means that, if a disjunctive construction has no disjunctive connective, it will always show some overt irrealis marker. Before moving to the analysis of this implicational regularity, let us consider some examples for each of the attested construction types.

As shown in (20), the first attested construction type is characterized by the *presence of both* a disjunctive connective and some irrealis marker. Some examples of this construction type have already been shown from Tauya (examples 14 and 15), which has the disjunctive connective *pe* and additionally requires, in order for the construction to be grammatical, that each SoA be individually marked with an interrogative or a dubitative suffix.[6]

This construction type is attested, at least to express the interrogative alternative, in all those languages which have a disjunctive connective. We have already

seen some examples from English (18b) and Italian (16, 19b), where the coexistence of some disjunctive connective and irrealis marker always occurs in interrogative disjunctive and is optional in standard disjunction. Let us now consider one more example from Nànáfwê, where the interrogative disjunctive construction is characterized by an obligatory interrogative intonation (Amani Bohoussou, p.c.) and by the presence of the specific interrogative disjunctive connective *ánzê*, which cannot be used to convey a standard alternative relation.

(21) Nànáfwê, Kwa, Niger-Congo (Amani Bohoussou, p.c.)
è kɔ́ sùklú áɲímán ***ánzê*** *è kà àwló wá*
1PL go school tomorrow **ALTNi** 1PL stay home here
'Do we go to school tomorrow or do we stay home?'

Moving now to the second attested construction type, as can be seen in (20) it is characterized by the *presence of a disjunctive connective* and the *absence of any irrealis marker*. Such constructions are only attested to convey standard alternative relations, since the expression of the interrogative alternative relation always requires some interrogative (and thus irrealis) marker. In examples (18a) and (19a) we have already seen some examples of standard disjunctive constructions with an unspecified reality value, that is, where no overt irrealis markers were shown. Let us now consider one more example from West Greenlandic:

(22) West Greenlandic, Inuit, Eskimo-Aleut (Fortescue 1984: 123)
aningaasa-ati-qa-nngil-aq ***imaluunniit***
money-ALIEN-have-NEG-3SG.IND **ALTN**
piqa-nngit-su-usaar-puq
have-NEG-INTR.PTCP-pretend-3SG.IND
'He has no money or pretends not to.'

Here again, as in English and Italian, the standard alternative relation is conveyed by a construction which has a disjunctive connective (*imaluunniit*) but no overt indication of reality value, since the basic indicative mood form can be used both in realis and in irrealis contexts, and no explicit irrealis markers are used.

The third attested construction type is characterized by the *absence of a disjunctive connective* and by the *presence of some overt irrealis marker* in each SoA. It is mainly used to convey interrogative alternative relations, but it can also be found for standard disjunction, as we have already seen in the examples from Hakha Lai (ex. 11) and Mangarayi (ex. 12).

Let us now consider some examples from Korean and Dargi, where this construction type can be used to convey the interrogative alternative relation. In (23) from Korean the interrogative alternative is conveyed by the juxtaposition of two interrogative clauses, each characterized by an overt question particle (23a) or by

the interrogative mood (23b) (Sohn 1994: 122). As can be seen in (23b) it is also possible to put a disjunctive connective between the two interrogative clauses, but in normal speech it is usually omitted.

(23) Korean
a. *wuli-ka ka-l-**kka**-yo? salam-ul ponay-l-**kka**-yo?*
1PL-NOM go-PRS-**Q**-POL person-ACC send-PRS-**Q**-POL
'Shall we go, or shall we send someone?' (Sohn 1994: 122)
b. *Minswu-nun onul o-**ni** **(animyen)** nayil o-**ni**?*
Minsu-TOP today come-**INT ALTN** tomorrow come-**INT**
'Does Minsu come today or tomorrow?' (Yusi Minsu Sin, p.c.)

The same construction type can be seen in (24) from Dargi, where the juxtaposition of two interrogative clauses conveys the interrogative alternative relation, with the possibility of using a disjunctive connective, which is often omitted. The sentence in (24) would be better rendered in English by means of NP disjunction, but for Dargi speakers NP disjunction in interrogative sentences is problematic and clausal disjunction is preferred (Van den Berg 2004: 203).[7]

(24) Dargi, Daghestanian, Caucasian (Van den Berg 2004: 203)
*Pilaw b-ir-eħe-**w** **(aħi)** nerǧ b-ir-eħe-**w**?*
pilaf(ABS) N-do-FUT.1PL-**INT** (**ALTN**) soup(ABS) N-do-FUT.1PL-**INT**
'Shall we make pilaf or (shall we make) soup?'

In the sample, all the constructions lacking a disjunctive connective show some double irrealis marking, which means that each of the two SoAs is overtly marked as irrealis (both can additionally fall under the scope of a unique irrealis marker, such as a modal auxiliary).

Each SoA taken individually is thus presented as possible, rather than as actual. It can be concluded, then, that the relation of alternative expressed by the disjunctive constructions may be conveyed either by a disjunctive connective or by a contextual inference based on the irrealis nature of the two juxtaposed SoAs.

Disjunctive constructions characterized by the absence of both a disjunctive connective and some overt irrealis marker are not attested. This means that, given a disjunctive construction,

(25) *the absence of a disjunctive connective* implies *the presence of some irrealis marker*.

More specifically, what is implied is that each SoA must display an irrealis marker and is therefore presented as possible, rather than as occurring or realized. In order for an alternative relation to be conveyed, either a disjunctive connective or some overt irrealis marker is necessary. If neither of the two occurs, it is difficult

to infer an alternative reading and the construction fails to fulfill an alternative function.

This implication proves that the irrealis value is a crucial aspect of the alternative relation. When it is not implied by the alternative meaning of a disjunctive connective, it needs to be explicitly signalled for each SoA.

Leaving further theoretical remarks to Sections 5 and 7, let us now examine the cross-linguistic distribution of the attested construction types for standard and interrogative alternative relations.

4.2 Languages types

If we examine how standard and interrogative alternative relations are encoded in the individual languages of the sample, we can identify a finite and non-random set of language types (see 26). Since interrogative disjunction is always characterized by the presence of some irrealis marker (see Section 4.1), the relevant parameter here is the presence vs. absence of a disjunctive connective.

The possible combinations of *presence* vs. *absence* of a disjunctive connective in standard disjunction and *presence* vs. *absence* of a disjunctive connective in interrogative disjunction determine four different types of combinations, which correspondingly identify four different language types (symbols in the table: + = attested, – = not attested).

(26)

	Presence of disjunctive connective in *standard* disj.	**Absence of** disjunctive connective in *standard* disj.
Presence of disjunctive connective in *interrogative* disj.	+ (pure overt-or)	– *(not attested)*
Absence of disjunctive connective in *interrogative* disj.	+ (mixed overt-or)	+ (covert-or)

Of these four language types, one is not attested: there is no language in the sample which uses a disjunctive connective to convey the interrogative alternative relation but no disjunctive connective to convey the standard alternative relation. This means that, in a given language, if it is possible to use a disjunctive connective in the interrogative disjunctive construction it will also be possible to use a disjunctive connective in the standard disjunctive construction. Before moving to the analysis of this implicational regularity, let us look at some examples for each of the attested language types.

The first language type is characterized by the presence of a disjunctive connective in both interrogative and standard disjunctive constructions and is thus labeled '**pure overt-or**' type. All of the European languages examined belong to this group: Italian, English, French, German, Spanish, Finnish, Irish, Hungarian, Russian and so on. However, pure overt-or languages can be found all over the world.

Pure overt-or languages may distinguish between interrogative and standard disjunction by means of two different specialized connectives. We have already seen some examples from Finnish (*tai* vs. *vai*), Polish (*lub* vs. *czy*) and Marathi (*kī* vs. *kīmwā*). Let us now look at two other languages which behave the same way: Nànáfwê and Somali.

As already noted in the discussion of example (21), repeated here as (27a), the connective particle *ánzê* in Nànáfwê can only be used to convey an interrogative alternative relation, never a standard alternative relation. Example (27b) illustrates instead the use of the standard disjunctive connective *wjéljé*, which can only occur in a bisyndetic construction (that is, it is repeated before each SoA) and never in questions.

(27) Nànáfwê, Kwa, Niger-Congo (Amani Bohoussou, p.c.)
   a. *é kɔ́ sùklú ánímán* ***ánzê*** *é kà àwló wá*
      1PL go school tomorrow **ALTNi** 1PL stay home here
      'Do we go to school tomorrow or do we stay home?'
   b. *títí* ***wjéljé*** *ń klè flúwá* ***wjéljé*** *ń lízè lèlé líká-n bù nú*
      usually **ALTNS** 1SG write paper **ALTNS** 1SG read until day-DEF break in
      'Usually, I write or I read until daybreak.'

Two different disjunctive connectives for interrogative and standard disjunction are attested in Somali, too, where *ama* conveys the standard alternative relation (28a) and *misé* conveys the interrogative alternative relation (28b):

(28) Somali, Cushitic, Afro-Asiatic (Saeed 1993: 275)
   a. ***amá*** *wuu kéeni doonaa* ***amá*** *wuu sóo.díri doonaa*
      ALTNS 3SG bring that **ALTNS** 3SG send that
      'Either he will bring it or he will send it.'
   b. *ma tégaysaa* ***misé*** *waad jóogaysaa?*
      INT go:2SG **ALTNi** here stay:2SG
      'Are you going or are you staying?'

The second language type is characterized by the presence of a disjunctive connective in standard disjunctive constructions and by the absence of a disjunctive connective in interrogative disjunctive constructions, and is thus labeled '**mixed overt-or**' type. Languages where interrogative disjunctive constructions involve an optional disjunctive connective also belong to this type. This is, for example,

the case in Japanese, as already shown in (17). We will regard such languages as mixed overt-or languages as long as the disjunctive connective is always attested in standard disjunctive constructions and can be omitted in interrogative disjunctive constructions, thus yielding a mixed overt-or pattern.

Some examples of mixed overt-or languages are Japanese (ex. 17), Korean (23) and Dargi (24). Another case in point is Malayalam: example (29a) shows a standard disjunctive construction that displays the disjunctive connective *alleŋkil* 'or', which could never occur in questions. In (29b), on the other hand, the interrogative disjunctive construction consists of two interrogative clauses which are simply juxtaposed.

(29) Malayalam, Tamil-Kannada, Dravidian (Asher and Kumari 1997: 140)
   a. *niŋŋaíkkə kiʈakkayil kiʈakkaam* ***alleŋkil*** *paayayil kiʈakkaam*
      2SG:DAT bed:LOC lie:PERMIS **ALTNS** mat:LOC lie:PERMIS
      'You can lie here or you can lie on the mat.'
   b. *innale raaman vann-**oo** vannill-**ee?***
      yesterday Raman come:PST-**INT** come:PST:NEG-**INT**
      'Did Raman come yesterday or he did not come?'

There is then a third language type that we can call the '**covert-or**' type. Covert-or languages are characterized by the absence of a disjunctive connective in both standard and interrogative disjunctive constructions. Languages of this type are not frequent in the sample. We have already seen the cases of Wari' (see ex. 1) and Mangarayi (see ex. 12), which are, with Meithei, 'pure' covert-or languages. There are, however, also languages where the alternative relation is usually conveyed by a disjunctive connective, but where this connective can be dropped both in standard and interrogative disjunction, as long as each SoA is explicitly marked as irrealis.

Let us consider, for instance, the case of Mandarin Chinese, where the interrogative disjunction may either display a disjunctive connective or may consist of the standard juxtaposition of overtly irrealis clauses. An interrogative alternative relation can be conveyed by the specific interrogative disjunctive connective *háishi* (ex. 30a), or by the juxtaposition of two interrogative clauses (example 30b) (in this case what distinguishes between interrogative and declarative is intonation; the intonation of (30b) marks it overtly as irrealis).

(30) Chinese, Sino-Tibetan
   a. *nǐ qù* ***háishi*** *tā lái*?
      2SG go **ALTNI** 3SG come
      'Will you go or will she come?' (Li and Thompson 1981: 531)
   b. *wǒ dǎ gěi nǐ nǐ dǎ gěi wǒ?*
      I hit to you you hit to I
      'Shall I call you or will you call me?' (Giorgio Arcodia, p.c.)

These examples from Chinese show that a language may belong to more than one language type. For example, if the disjunctive connective is optional in both standard and interrogative disjunctive constructions, the language is simultaneously a covert-or and an overt-or language. What is relevant for this work is whether a language has the *possibility* of conveying a certain semantic relation by means of a certain construction type.

There is one language type which is not attested in the sample. No language has been found where the standard alternative relation can only be conveyed by juxtaposition of overtly irrealis clauses, while the interrogative alternative relation is expressed by means of a disjunctive connective.

Therefore, for any given language, if the standard alternative relation can be expressed without using a disjunctive connective, then the interrogative alternative relation also can be expressed without using a disjunctive connective. The following implicational generalization can then be formulated:

(31) *the absence of a disjunctive connective in* standard *disjunction* **implies** *the absence of a disjunctive connective in* interrogative *disjunction*.

In Section 7 we will go on to discuss the motivations underlying this regularity.

5. The irreality of alternatives

From what we have said in the preceding sections, it is evident that languages encode the concept of alternative in different but non-random ways. Specifically, the implicational generalizations that were made in Section 4 reveal the major role that irreality plays in the encoding of disjunctive constructions, at both the semantic and the structural level.

As already noted in Section 3.2, there are no cases in the sample of disjunctive constructions where each SoA is overtly marked as realis; on the other hand, constructions with overt irrealis markers occur frequently. In fact, in disjunctive constructions either there are irreality markers, or there are neutral forms which can be used to convey both realis and irrealis situations. This suggests that reality markers are in some way incompatible with the concept of alternative.

Given a slot 'X' in a possible world, it can be occupied by only one of the two alternative SoAs *at a time*. In other words, two alternative SoAs are conceptualized as equivalent possibilities, only one of which will or did actually take place at the specific moment which constitutes the free slot 'X'. Until a choice is made or the speaker comes to know which hypothesis is realized at that given time, either SoA could be the non-occurring one and therefore both are conceptualized as irrealis.

By contrast, if one or both SoAs are overtly marked as realis, that is, asserted as realized, this means that the speaker knows which SoA will or did occur at that given time. There is therefore no alternative to posit. Since the potential status of the relevant SoAs is a constitutive aspect of any alternative relation, it follows that a construction with overt realis markers could not fulfil a disjunctive function.

The central role of irreality in the concept of alternative has to some extent already been pointed out by Ohori (2004: 56–57), in citing cases of what he calls 'underdifferentiation' between conjunction and disjunction. In order to make his arguments clear, Ohori examines the following Maricopa examples:

(32) Maricopa, Yuman, Hokan (Gil 1991:99)
  a. *John-š Bill-š vʔaawuum*
  John-NOM Bill-NOM come.3PL.FUT
  'John and Bill will come.'
  b. *John-š Bill-š vʔaawuumšaa*
  John-NOM Bill-NOM come.3PL.FUT.INFER
  'John or Bill will come.'

Ohori points out that what matters in these two examples is the epistemic status of the states of affairs. In (32a), the verb is marked as future only and the SoA being described "is securely believed by the speaker with higher certainty".[8] In (32b), on the other hand, the verb has an inferential suffix, which means that the speaker is not certain about what is going to happen. "The AND-OR distinction is thus dependent on the choice of a modal-like element on the verb. If certain, the resulting interpretation is AND. If uncertain, it is OR" (Ohori 2004: 57).

Ohori gives another example from Upriver Halkomelem (Salish), where the connective *qə* is used to convey both 'and' and 'or' meanings (there is thus no specific disjunctive connective). The correct interpretation depends on the declarative vs. interrogative form of the construction: a declarative form gives a conjunctive reading, and an interrogative form an alternative one.

As Ohori (2004: 64) puts it, the realis-irrealis distinction is a crucial factor in forming the concepts of AND and OR. In some languages, he says, a list of entities can be interpreted conjunctively (= AND) when the predication's modality is realis; when the predication's modality is irrealis, by contrast, this means the acknowledgment of alternative possibilities (= OR).

In the field of logic, too, increasing attention has been paid to the connection between modality and disjunction. In Zimmermann's (2001) and Geurts's (2004) analysis, the concept of possibility plays a major role in the definition of disjunction, to the point that they equate disjunction to a list of *epistemic possibilities*, naturally rendered as a conjunction of irrealis propositions.

The key innovation in Zimmermann's and Geurts's analysis is that natural language 'or' is argued to express a *modal* concept, rather than a truth-functional one: someone who utters a sentence of the form 'S1 or… or Sn' presents his audience with a list of alternatives which are modal propositions[9] (Geurts 2004: 3–11), namely irrealis ones. To say that 'Brown is either in Lagos or in Harare' is to assert that, as far as the speaker knows, 'Brown **may be** in Lagos, Brown **may be** in Harare, and there are no other places where Brown might be'. The corresponding formalism is:

$$A \vee B \models \Diamond A \,\&\, \Diamond B$$

We will not explore Zimmermann's and Geurts's analysis in further detail. What is relevant, however, is that through different means they arrive at the same conclusion we have reached here. A conjunction of potential (irrealis) propositions is, indeed, exactly what we find in languages that do not have a disjunctive connective, namely languages that use juxtaposition and display overt irrealis markers in each SoA.

The point, once again, is that there is a difference between propositions which do not mark the actuality value of the relevant SoA and use a disjunctive connective, on the one hand, and propositions which are overtly marked as irrealis and use no disjunctive connective, on the other. This is a crucial distinction in the encoding of disjunction.

6. A diachronic glance

A quick diachronic glance confirms the close connection between irreality and the alternative relation. Many disjunctive connectives indeed originate from or evolve into irrealis markers, such as interrogative particles (like Polish *czy*, for instance, see Heine and Kuteva 2002: 226–227) or hypothetical forms.

Specifically, there are a few cases where a hypothetical construction with a negated protasis has developed into a disjunctive connective. For instance, the Lezgian disjunctive connective *taxajt'a* was originally the conditional form of the negated aorist participle of *xun* 'be' (Haspelmath 1993: 332).

Hakha Lai, too, displays a recent disjunctive suffix which is still transparent in its components. As seen from example (33), *-làw-leè* is the combination of the negator *-làw* and the ancient conditional suffix *-leè*. At present, Hakha Lai uses a new form for the conditional construction, and this quite complicated way of expressing an alternative relation is on the way to grammaticalization as a disjunctive connective.

(33) Hakha Lai, Tibeto-Burman (Peterson and VanBik 2004: 339)
*làwthlawpaa falaám ʔa-kál-**làw-leè** haàkhaà-ʔaˀ ʔa-ʔùm*
farmer Falam 3SG.SBJ-go-**NEG-COND** Hakha-LOC 3SG.SBJ-exist
'The farmer goes to Falam or he stays in Hakha.' (lit. 'The farmer, if he doesn't go to Falam, he stays in Hakha')

A similar construction is regularly used in Nànáfwê to encode a standard alternative relation:

(34) Nànáfwê, Kwa, Niger-Congo (Bohoussou, p.c.)
cén wjéljé sɛ́ nán ánwán jɛ́ ɔ́ tíké ɔ́ fùndréti jɛ́ ɲín ɔ́n
day some if NEG door that it open.PRF FOC window that.it slam.PRF FOC
'Sometimes a door opened or a window slammed.' (lit. 'Sometimes, if it wasn't a door that opened, it was a window that slammed')

In all these cases, the construction as a whole is built as a hypothetical one. In particular, the hypothesis of the nonoccurrence of the first SoA is the condition for the second SoA to occur instead, and both SoAs are then presented as irrealis. The combination of a negation and a conditional construction seems to be a common source for the grammaticalization of a disjunctive connective, probably because it simultaneously encodes irreality and mutual replaceability of alternatives.[10]

In colloquial Italian, too, it is possible to use '*sennò*' (< *se no*) 'if not', instead of '*o*', to convey a standard alternative relation (see ex. 35). This construction cannot be used to convey interrogative alternative relations; the result would be ungrammatical.

(35) Italian, Romance, Indo-European
*Andiamo al cinema, **sennò** stiamo a*
go:IND.PRS.1PL ALL.DEF cinema if.not stay:IND.PRS.1PL LOC
*casa, **sennò** facciamo una passeggiata … dimmi tu!*
home if.not make:IND.PRS.1PL INDF walk tell.IMP.2SG:2SG.DAT 2SG
'We can go to the cinema, or we can stay at home, or we can go for a walk … it's up to you!'

A survey of grammaticalization phenomena involving disjunctive connectives would be the natural development of this typological analysis. The conceptual closeness between the meaning of alternative and hypothetical/irrealis modality is confirmed in the diachronic perspective as well, since these data point to possible paths of grammaticalization along which disjunctive connectives arise from (or develop into) irrealis constructions.[11]

As we have seen, generic irrealis constructions may start to encode aspects of meaning that were originally left to inference, such as the alternative relation between the SoAs, and thus acquire a more specific disjunctive function.

The diachronic origin of disjunctive connectives is in need of further investigation and represents an interesting topic for future research.

Let us now, finally, examine how the connection between irreality and the relation of alternative interacts with the implicational generalizations presented in Section 4.

7. Conclusion: Irreality and the explanation of the implicational patterns

The typological study carried out in this work confirms the close connection between irreality and the notion of alternative possibilities, and shows that the concept of irreality plays a crucial role in the encoding of alternative relations across languages.

7.1 Irreality and construction types

As we have seen in Section 4.1, there are no disjunctive constructions in the sample with neither irrealis markers nor a disjunctive connective. Irreality clearly plays a major role in the explanation of this 'typological absence'.

SoAs lack overt irrealis marking only if their irrealis status is already implicit in the alternative meaning expressed by the disjunctive connective itself. In this case, we can see the principle of *syntagmatic economy* at work: information that is already recoverable from the context (in this case, recoverable from the disjunctive connective) needs no further specification (Haiman 1985).

If there is no disjunctive connective, on the other hand, languages obligatorily mark the irreality of alternative SoAs by means of already available strategies, such as dubitative particles or moods, hypothetical or interrogative forms and other similar irrealis markers.

In order to be presented as alternatives, then, SoAs need to be characterized in terms of possibility, either by means of a disjunctive connective or by means of already available irrealis markers. A construction without a disjunctive connective and without irrealis markers is a construction which is not able to encode the potential status of the SoAs, and hence fails to capture a basic aspect of their nature as alternatives. This construction type is not attested because it would lead to a loss of communicative value, since not only is the concept of alternative not encoded, but it is also not recoverable from the context.

7.2 Irreality and language types

As shown in Section 4.2, there is no language in the sample which uses a disjunctive connective only to convey interrogative alternative relations, while standard alternatives are expressed by juxtaposition of overtly irrealis clauses. The reason why this language type is not attested is related not only to the irreality of alternatives, but also to their property of being possible and non-co-occurring substitutes for each other.

The possibility of using a disjunctive connective to convey an interrogative alternative relation in a given language implies that a standard alternative relation, too, can be conveyed by means of a disjunctive connective. In order to understand the motivation underlying this implication, we first of all need to analyze in what respects disjunctive connectives differ from irrealis markers. As already noted, the two overlap in the expression of the irreality of each SoA, since a disjunctive connective implies the irreality of each alternative. However, an alternative relation is not characterized just by the irreality of the involved SoAs, even though this is a crucial point. There is at least one more semantic property which is necessary for two possibilities to be conceived as alternatives.

As noted in Section 2, two SoAs can be conceived as alternatives if they constitute possible and non-co-occurring substitutes for each other. Disjunctive connectives and irrealis markers differ exactly in this respect: the function of a disjunctive connective is to convey an alternative relation between two SoAs as a whole, including possible substitution and mutual non-co-occurrence, whereas the function of an irrealis marker is to convey the irreality of a single SoA, with the rest left to context.

Therefore, if a disjunctive construction lacks a disjunctive connective, the irreality of each SoA will be conveyed by irrealis markers; their quality of non-co-occurring substitutes will then be inferred from the context. If a disjunctive connective is used, on the other hand, neither of these aspects (irreality and mutual replaceability) is left to the context, but both are inherent in the alternative meaning conveyed by the disjunctive connective.

Returning to the typological implicational patterns, we can now try to give an answer to the question of why, if a language has a disjunctive construction with no disjunctive connective, it must minimally be used for interrogative alternative relations.

The use of a disjunctive connective in standard disjunction allows for the absence of overt irrealis markers, since the irreality of the relevant SoAs is part of the meaning of the connective and does not need to be specified further. Each clause may then occur with a basic unmarked verbal form (for instance, a present indicative), and there will no longer be a need for explicit irrealis markers.

This result is *economical*, because the notion of irreality, which is an implication of the meaning of the disjunctive connective, is not further specified.

On the other hand, when a disjunctive connective is used in interrogative disjunction, this construction will still display irreality markers, since the irrealis status of both SoAs is always overtly marked in interrogative disjunction. In this case, then, the use of a disjunctive connective would not be economical but would lead to redundancy in the expression of irreality, in that irreality would be encoded both by the interrogative markers and by the disjunctive connective.

Furthermore, when there is no disjunctive connective, an alternative interpretation can only be inferred from the context. The data show that if a language has such a juxtaposing disjunctive strategy at all, it will first of all be used to express interrogative alternative.

It is plausible, then, to suggest that it is easier to infer an alternative relation from the juxtaposition of two interrogative clauses than from the juxtaposition of two declarative clauses (once again, the principle at work is *syntagmatic economy*).

The reason why two juxtaposed interrogative clauses are more easily interpreted as alternatives is presumably related to the nature of the relation that can be postulated between the relevant SoAs. As was pointed out in Section 2, two alternative SoAs are possible substitutes for each other. As such, they must show some semantic contrast. 'He loves her' and 'He wants to marry her', for instance, would not stand in an alternative relation. Now, when two SoAs which stand in semantic contrast are juxtaposed in a *declarative* sentence, this may easily be for reasons other than the existence of an alternative relation between the two. For example, such juxtaposition commonly occurs because of temporal/causal sequentiality (the two SoAs are juxtaposed because they occur one after the other) or simultaneity (the two SoAs are juxtaposed because they occur at the same time).

If two *interrogative* clauses are juxtaposed, this means that the SoAs are questioned and that the speaker does not know if they actually occur. Since they are not presented as actually occurring, the reason for presenting the two SoAs together can hardly be that they are linked by a relation of temporal/causal sequentiality or simultaneity. Indeed, there seems to be no particular communicative reason to juxtapose two interrogative SoAs which stand in semantic contrast, if they are not in fact conceived as alternatives. Consequently, if two interrogative SoAs standing in semantic contrast are juxtaposed, they will most easily be interpreted as alternatives.

To conclude, I hope to have shown that the concept of alternative is encoded in different but non-random ways across languages. A systematic analysis of the attested constructions reveals a strong connection between irreality and disjunction, and this connection is due to the fact that the concept of alternative relation, as defined in semantic terms, implies the irreality of the involved SoAs.

Abbreviations

1	first person	DUB	dubitative	LOC	locative
2	second person	ERG	ergative	M	masculine
3	third person	F	feminine	N	neuter
ABS	absolutive	FOC	focus	NEG	negative
ACC	accusative	FUT	future	NOM	nominative
ADESS	adessive	GEN	genitive	PERMIS	permissive
ALIEN	alienable	HON	honorific	PL	plural
ALL	allative	ILL	illative	POL	polite
ALTN	alternative	IMP	imperative	PRF	perfect
ALTNI	interr. altern.	INCOMP	incompletive	PROG	progressive
ALTNS	standard altern.	IND	indicative	PRS	present
AUG	augmentative	INDF	indefinite	PST	past
CIRC	circumstantial	INF	infinitive	PTCP	participle
CON	conditional	INFER	inferential	Q	question
DAT	dative	INT	interrogative	QUOT	quotative
DECL	declarative	INTERJ	interjection	R	realis
DEIC	deictic	INTR	intransitive	SBJ	subject
DIREC	directive	IRR	irrealis	SG	singular

Languages in the sample

Symbols: *disj.* = disjunctive connective; *irr.* = irrealis marker; + = present; − = absent; +/− = optional; *non*e = no disjunctive construction attested

Language	Family	Standard disjunction		Interrogative disjunction		Reference
		disj.	*irr.*	*disj.*	*irr.*	
Albanian	Indo-European, Albanian	+	+/−	+	+	Buchholz and Fiedler 1987
Arabic	Afro-Asiatic, Semitic	+	+/−	+	+	Caspari 1955
Basque	Isolate	+	+/−	+	+	Saltarelli 1988
Bulgarian	Indo-European, Slavic	+	+/−	+	+	Scatton 1993, Feuillet 1996
Catalan	Indo-European, Romance	+	+/−	+	+	Hualde 1992
Chechen	Caucasian, Nakh	+	+/−	+	+	Jeschull 2004
Chinese	Sino-Tibetan, Chinese	+/−	+/−	+/−	+	Li and Thompson 1981
Danish	Indo-European, Germanic	+	+/−	+	+	Allan, Holmes, and Lundskær-Nielsen 1995

Language	Family	Standard disjunction		Interrogative disjunction		Reference
		disj.	*irr.*	*disj.*	*irr.*	
Dargi	Caucasian, Daghestanian	+	+/–	+/–	+	Van den Berg 2004
Dumi	Sino-Tibetan, Tibeto-Burman	+	+/–	+	+	Van Driem 1993
Dutch	Indo-European, Germanic	+	+/–	+	+	Donaldson 1997
English	Indo-European, Germanic	+	+/–	+	+	Huddleston 1988
Finnish	Uralic, Finno-Ugric	+	+/–	+	+	Karlsson 1987
French	Indo-European, Romance	+	+/–	+	+	Arrivé, Gadet, and Galmiche 1986
Georgian	Caucasian, Kartvelian	+	+/–	+	+	Hewitt 1996
German	Indo-European, Germanic	+	+/–	+	+	DUDEN 2005
Greek	Indo-European, Hellenic	+	+/–	+	+	Holton, Mackridge, and Philippaki-Warburton 1997
Hakha Lai	Sino-Tibetan, Tibeto-Burman	+	+/–	–	+	Peterson and VanBik 2004
Hausa	Afro-Asiatic, Chadic	+	+/–	+	+	Smirnova 1982
Hdi	Afro-Asiatic, Chadic	+	+/–	+	+	Frajzyngier and Shay 2002
Hebrew	Afro-Asiatic, Semitic	+	+/–	+	+	Glinert 1989
Hocąk	Siouan Mississippi	+	+/–	+	+	Helmbrecht in prep.
Hungarian	Uralic, Finno-Ugric	+	+/–	+	+	Kenesei, Vago, and Fenyvesi 1998
Iraqw	Afro-Asiatic, Cushitic	+	+/–	+	+	Mous 2004
Irish	Indo-European, Celtic	+	+/–	+	+	McGonagle 1998
Italian	Indo-European, Romance	+	+/–	+	+	Scorretti 1988
Jacaltec	Mayan, Kanjobalan-Chujean	+	+/–	+	+	Craig 1977
Jamul Tiipay	Hokan, Yuman	+	+/–	+	+	Miller 2001
Japanese	Japanese	+	+/–	+/–	+	Hinds 1986
Kisi	Niger-Congo, Atlantic	+	+/–	+	+	Childs 1995
Kolyma Yukaghir	Yukaghir	+	+/–	+	+	Maslova 2003
Korean	Isolate	+	+/–	+/–	+	Sohn 1994
Koromfe	Niger-Congo, Gur	+	+/–	–	+	Rennison 1997
Lango	Nilo-Saharan, Nilotic	+	+/–	–	+	Noonan 1992
Lezgian	Caucasian, Lezgian	+	+/–	–	+	Haspelmath 1993

Language	Family	Standard disjunction		Interrogative disjunction		Reference
		disj.	*irr.*	*disj.*	*irr.*	
Malayalam	Dravidian, Tamil-Kannada	+	+/–	–	+	Asher and Kumari 1997
Maltese	Afro-Asiatic, Semitic	+	+/–	+	+	Borg and Azzopardi-Alexander 1997
Mangarayi	Australian, Gunwingguan	–	+	–	+	Merlan 1982
Maori	Austronesian, Malayo-Polynesian	+	+/–	+	+	Bauer 1993
Marathi	Indo-European, Indo-Iranian	+	+/–	+	+	Pandharipande 1997
Meithei	Sino-Tibetan, Tibeto-Burman	+/–	+/–	–	+	Chelliah 1997
Nanafwê	Niger-Congo, Kwa	+	+/–	+	+	Bohoussou 2006
Ndyuka	Creole, English-based	+	+/–	+	+	Huttar and Huttar 1994
Persian	Indo-European, Indo-Iranian	+	+/–	+/–	+	Stilo 2004
Polish	Indo-European, Slavic	+	+/–	+	+	Fisiak, Lipińska-Grzegorek, and Zabrocki 1978
Portuguese	Indo-European, Romance	+	+/–	+	+	Hutchinson 1996
Rapanui	Austronesian, Malayo-Polynesian	+/–	+/–	+/–	+	De Feu 1996
Romanian	Indo-European, Romance	+	+/–	+	+	Dragoş 1995
Russian	Indo-European, Slavic	+	+/–	+	+	Comtet 1997
Somali	Afro-Asiatic, Cushitic	+	+/–	+	+	Saeed 1993
Spanish	Indo-European, Romance	+	+/–	+	+	Sarmiento and Sánchez 1990
Supyire	Niger-Congo, Gur	+	+/–	+	+	Carlson 1994
Tauya	Trans-New Guinea, Brahaman	+	+	+	+	MacDonald 1990
Tukang Besi	Austronesian, Malayo-Polynesian	+	+/–	+	+	Donohue 1999
Turkish	Altaic, Turkic	+	+/–	+/–	+	Kornfilt 1997
Tuvaluan	Austronesian, Malayo-Polynesian	+	+/–	+	+	Besnier 2000
Upper Kuskokwim Athabaskan	Nadene, Nuclear	+	+/–	none	none	Kibrik 2004
Vietnamese	Austro-Asiatic, Viet-Muong	+	+/–	+	+	Nguyễn 1997

Language	Family	Standard disjunction		Interrogative disjunction		Reference
		disj.	*irr.*	*disj.*	*irr.*	
Wari'	Chapacura, Wanham	–	+	–	+	Everett and Kern 1997
West Greenlandic	Eskimo-Aleut	+	+/–	+	+	Fortescue 1984

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Notes

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1. By state of affairs (SoA) is meant here the conception of something that can be the case in some world, and can be evaluated in terms of its existence (Siewierska 1991, Dik 1997). 'State of affairs', as Cristofaro (2003: 25) notes, should be understood as a hyperonym for the entities usually called 'events', 'states', 'situations', and the like. The term 'state of affairs' is preferred because it does not characterize the entity in any particular sense, whereas 'event' or 'situation' can convey a dynamic vs. static connotation.

2. In Boolean logic two types of disjunction are distinguished (Allwood, Andersson, and Dahl 1977, Ohori 2004, Dik 1968). The first, called *inclusive* disjunction, is true iff, given two propositions p and q, at least one of them is true. The second type of disjunction is labeled *exclusive*. Exclusive disjunction is true iff only one of the disjoined propositions is true, and therefore iff the truth of the one excludes the truth of the other.

3. Modality may refer to 'objective' circumstances that make the actuation of a SoA necessary or allowed, to the likelihood of a given SoA or to the degree of commitment of the speaker towards the truth of the proposition describing the SoA itself (Cristofaro 2003: 60). Generally speaking, modality can be considered as the level of the speaker's (or agent's) attitude or point of view regarding what is being said (the propositional content).

4. The terminology 'realis'/'irrealis' is often used in descriptions of creole languages, Australian languages, languages of New Guinea and languages of North America to refer to the structural

level, namely as the label for particular verbal suffixes or particles which encode the two values of realis and irrealis (see Bybee, Perkins, and Pagliuca 1994 and Elliott 2000). In this paper, however, the terms 'realis' and 'irrealis' will refer to a semantic distinction.

5. The questionnaire consisted of 36 sentences, covering relations of conjunction, adversativity and disjunction. 10 of these 36 sentences were meant to investigate the disjunctive relation. Furthermore, each sentence was constructed in such a way that the context of discourse was made clear, so that speakers were able to identify as precisely as possible the semantic situation that was to be rendered in their native language.

6. An interesting point here is that NP disjunction in Tauya likewise shows the disjunctive connective *pe* and requires both NPs to bear the dubitative suffix *-rafu*. (For a detailed treatment of nominal and verbal disjunction see Mauri (forthcoming).)

7. Indeed, in many languages (such as for instance Hakha Lai, Japanese, Koromfe, Tauya and Wari'), NP disjunction in interrogative sentences is impossible and clausal disjunction is used instead.

8. Future markers are usually considered as irrealis markers. Yet, as Ohori points out, the SoA in (32a) is "securely believed" by the speaker. In this case, then, the future SoA is treated as certain and shows some reality features.

9. Generalising Zimmermann's analysis, Geurts assumes that the logical form of a sentence 'S1 or … or Sn' is a conjunction of modal propositions and, other things being equal, that modality is epistemic and existential. However, Geurts says, modality is usually set by context, and can therefore also be different from epistemic (it can also be deontic).

10. These considerations follow from many discussions with Amani Bohoussou.

11. A typical example of the development from disjunctive connective to irrealis marker is German *oder* 'or', which can also function as a marker of polar tag questions. See further Haiman (1985: 47), Heine and Kuteva (2002: 226–227).

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