

Logical vs. Natural Language Conjunctions in Czech

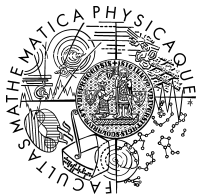


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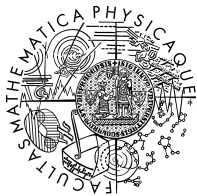
ITAT, September 18 2016, Tatranské Matliare

Small logical task for beginning



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- Create the obversion (obměna)



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- $A \rightarrow B$ after obversion: $\neg B \rightarrow \neg A$



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- Create the obversion (obměna)
- $A \rightarrow B$ after obversion: $\neg B \rightarrow \neg A$

Když prší, chodník je mokrý.

If it is raining, the pavement is wet.



Small logical task for beginning

Když prší, chodník je mokrý.

→ Když chodník není mokrý, neprší.

If it is raining, the pavement is wet.

→ If the pavement is not wet, it is not raining.



Small logical task for beginning

Když prší, chodník je mokrý.

→ Když chodník není mokrý, neprší.

If it is raining, the pavement is wet.

→ If the pavement is not wet, it is not raining.

Easy? Straightforward?



Bigger logical task for beginning

Jestliže Honza neodevzdá diplomovou práci včas a nepřihlásí se ke státnicím, studia letos nedokončí.

If Honza doesn't submit the thesis in time and doesn't subscribe for the state exams, he won't finish his studies in this year.



Bigger logical task for beginning

Jestliže Honza studia dokončí, pak odevzdá diplomovou práci včas nebo se přihlásí ke státnicím.

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Bigger logical task for beginning

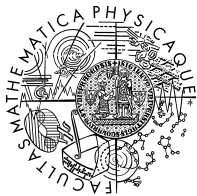
Jestliže Honza neodevzdá diplomovou práci včas ~~✗~~ ^{nebo}
nepřihlásí se ke státnicím, studia letos nedokončí.

If Honza doesn't submit the thesis in time ~~and~~ ^{or} doesn't
subscribe for the state exams, he won't finish his studies in
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Problem with obversion

88,5 % of school children had problems with
the obversion

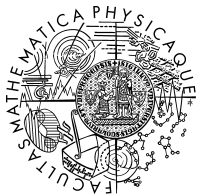


Conjunction is like “and” ...

High school math textbook:

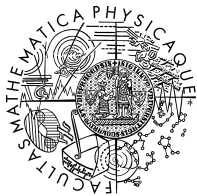
Konjunkce výroků A , B je složený výrok ve tvaru **A a B** , který označuje **$A \wedge B$** .

Conjunction of propositions A , B is a composed propositions, which sounds as **A and B** and is marked as **$A \wedge B$** .



Conjunction is like “and”...

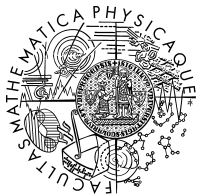
Logical AND and connective AND from natural language are not the same.



Well, it is...

Lev je kočkovitá šelma a žije v Africe.

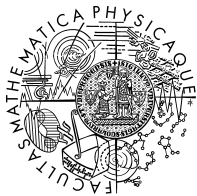
Lion is a feline and it lives in Africa.



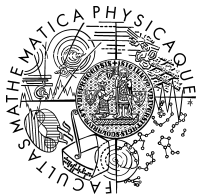
... but not always

Dneska je neděle a prší.

It's sunday tody and it's raining righ now.



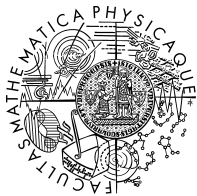
Violation of a temporal sequence



Violation of a temporal sequence

Honza spadl a zlomil si ruku.

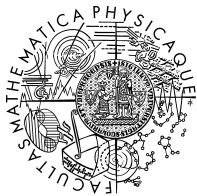
Honza fell and broke his arm.



Violation of a temporal sequence

Šli jsme na výstavu a potom do kina.

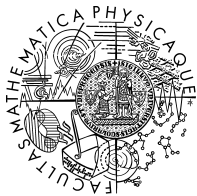
We have visited an exhibition and then we went
to a cinema.



Violation of a temporal sequence

Jana odemkla a vešla do bytu.

Jana unlocked and entered the flat.



Violation of a temporal sequence

současně

Jana odemkla a vešla do bytu.

Jana unlocked and entered the flat.

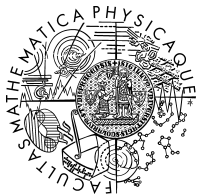
at the same time



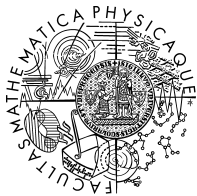
Violation of a temporal sequence

Gödel se narodil v roce 1906 a zemřel v roce 1978.

Gödel was born in 1906 and died in 1978.



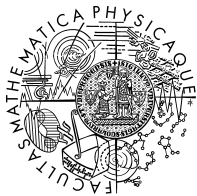
Relation expressions



Relation expressions

Jana a Honza jsou studenti.

Jana and Honza are students.



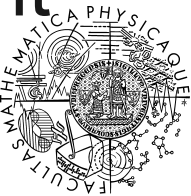
Relation expressions

Jana a Honza jsou studenti.

→ Jana je student a Honza je student

Jana and Honza are students.

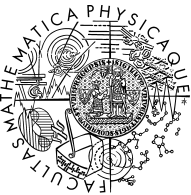
→ Jana is a student and Honza is a student



Relation expressions

Jana a Honza jsou přátelé.

Jana and Honza are friends.



Relation expressions

Jana a Honza jsou přátelé.

→ Jana je přítelkyně a Honza je přítel.

Jana and Honza are friends.

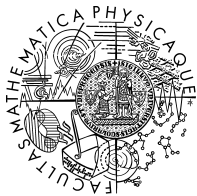
→ Jana is a friend and Honza is a friend.



Relation expressions

Barma a Myanmar jsou totéž.

Burma and Myanmar is the same thing.



Relation expressions

Barma a Myanmar jsou totéž.

→ Barma je totéž a Myanmar je totéž.

Burma and Myanmar is the same thing.

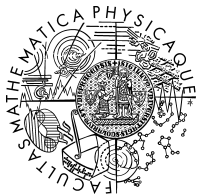
→ Burma is the same thing and Myanmar is the same thing.



Problem of singular and plural

Na ulici stálo modré a zelené auto.

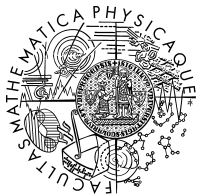
There was a blue and green car parking on the street.



Problem of singular and plural

Na ulici stála modrá a zelená auta.

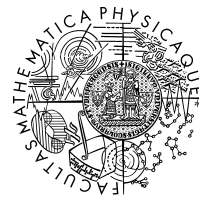
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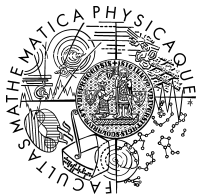
Problem of singular and plural

Článek se zabývá aktivními a pasivními příjmy.

The article discusses the active and passive incomes.



Thank you for attention!



Thank you for attention!

Logical AND is not the connective from natural language.

Sešli se tam všichni místní slavní a bohatí lidé.
Černé a bílé ponožky se pomíchaly.

Na ulici stála špinavá a poškrábaná auta.
Pošťák přivezl velký a těžký balík.

Jana a Honza se vzali.
Jako cestovatel se dostal na mnohem zajímavější a
podivuhodnější místa.

