

Generating Market Comments Referring to External Resources

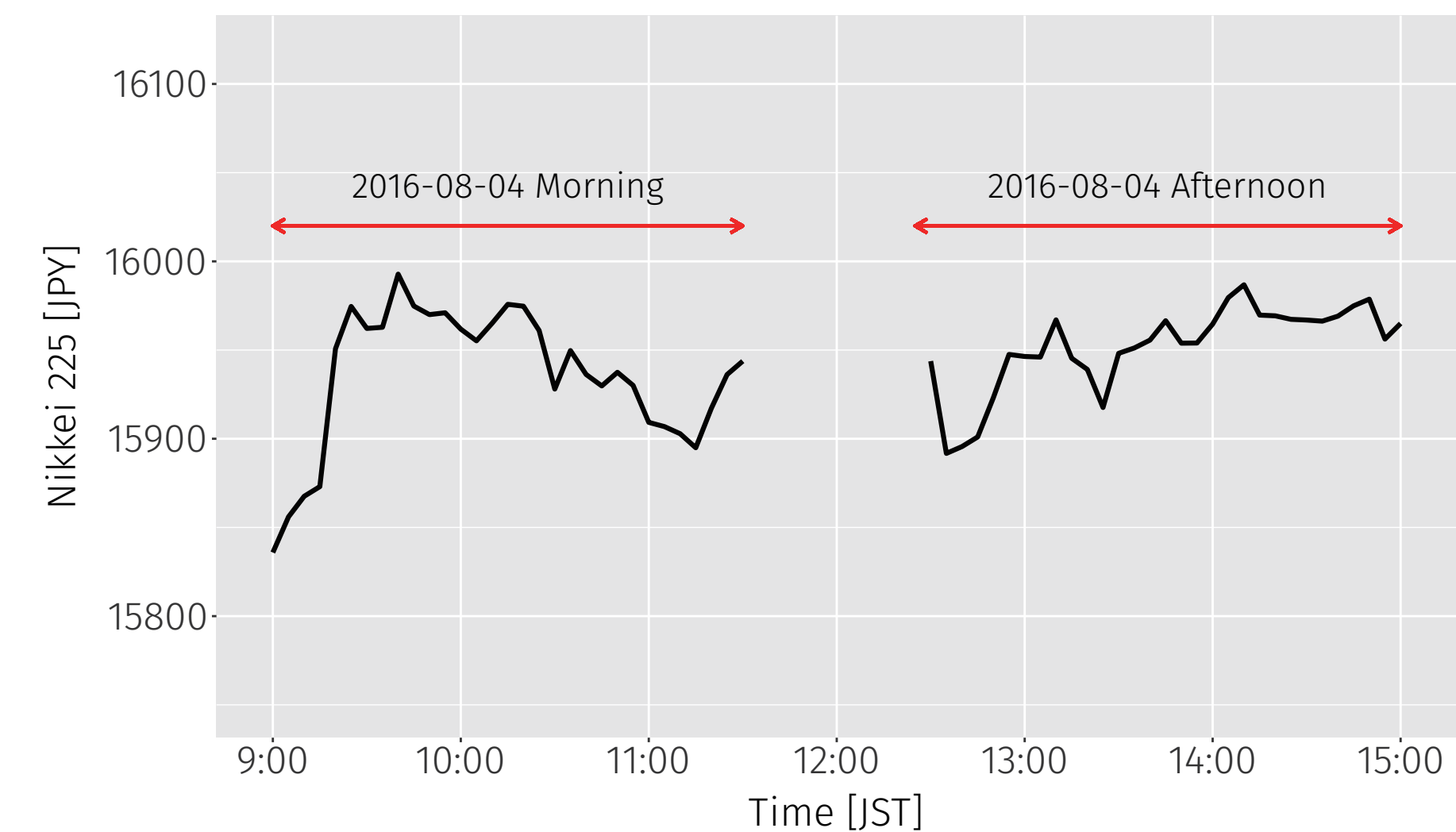
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Task: Generating Market Comments from Time-Series Data

Input: Time Series Data (Stock Prices, FX Rates, etc.)

Output: Market Comments

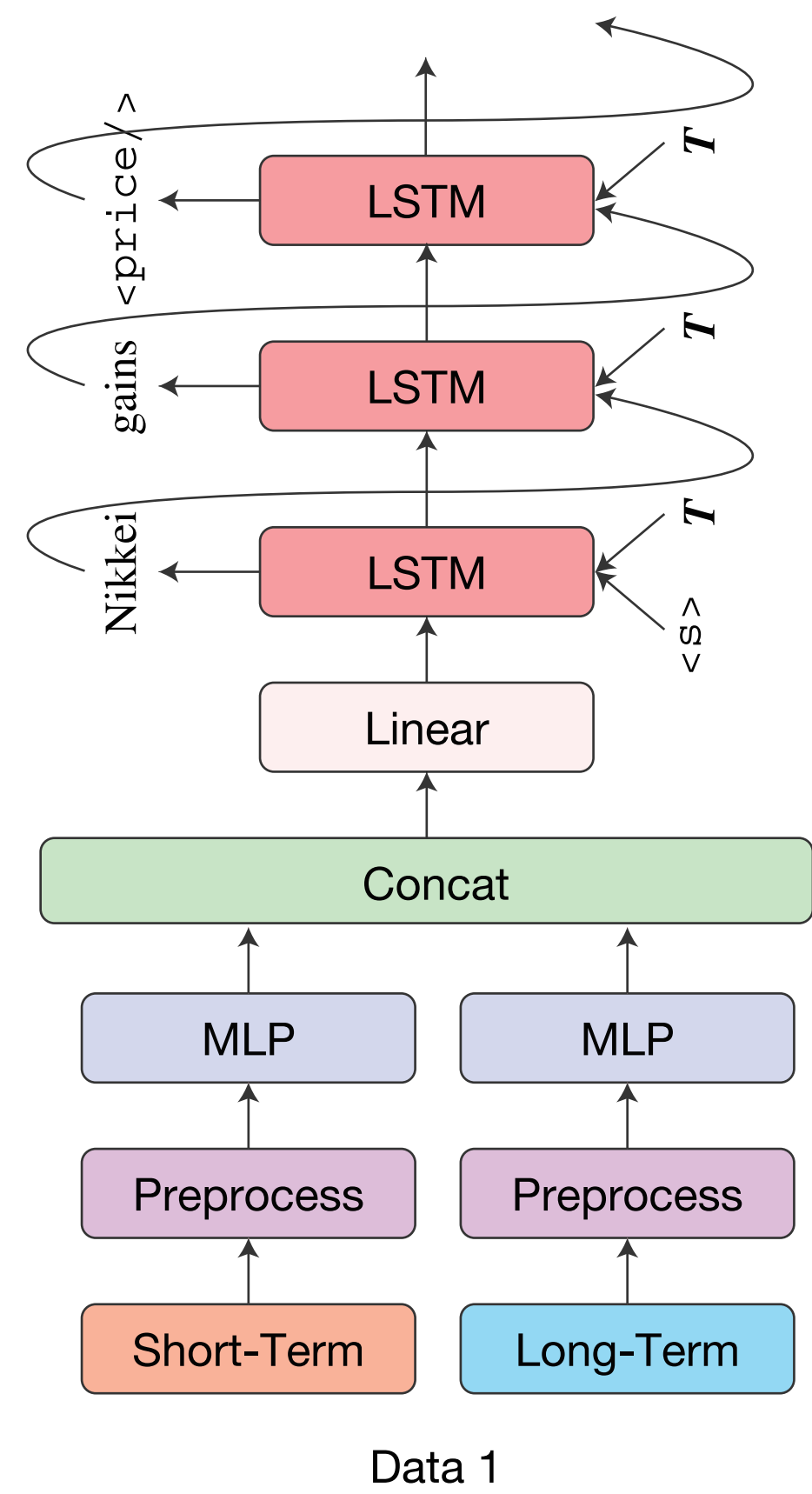


東証 寄り付き 続伸、 上げ幅 300 円 超、
Toushou yoritsuki zokushin, agehaba 300 en chou,
TSE opening continual_rise, gain 300 yen over,
円安で 輸出株に 買い
en-yasu-de yushutsu-kabu-ni kai
yen-cheap-INS export-stock-DAT purchase
“**Tokyo Stock Exchange** opens 300 yen higher with a continual rise, thanks to demand for export-related shares boosted by a **cheaper yen**.”

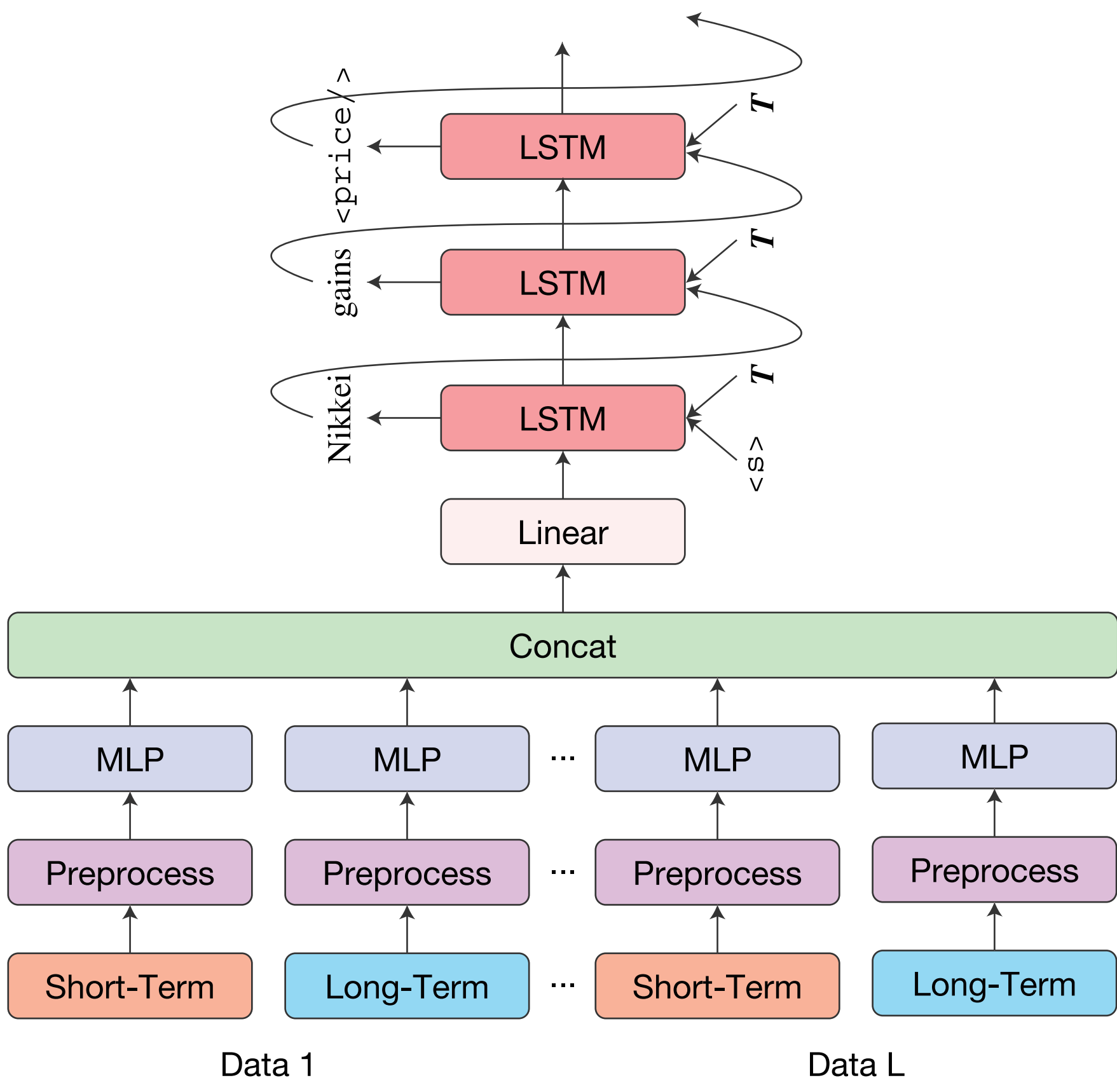
Market comments often mentions multiple data sources such as **Nikkei 225** and **USD/JPY**.
Previous research only takes a single source (Murakami et al, ACL 2017).
We propose a model that takes multiple sources as input to generate comments that mentions external sources.

Models

Baseline (BASE)
(Murakami et al, ACL 2017)
Single source



Proposed (MULTI)
Multiple sources



Used Sources

- Text Data
- Nikkei Quick News (2011-2016)
- Time-Series Data
- Stock market Indices (Nikkei 225, TOPIX, DJI, S&P, etc.)
 - Futures (Nikkei 225 Future)
 - Currency Exchange Rates (USD/JPY and JPY/EUR)

Source Code

<https://github.com/aistairc/market-reporter>

MARKET REPORTER



Automatic Evaluation

Our method showed higher BLEU scores.

Method	BLEU (%)
BASE	21.88 ± 0.31
MULTI	23.66 ± 0.35

Human Evaluation

Both methods generated fluent comments.

	fluent	not_fluent
HUMAN	98	2
BASE	95	5
MULTI	96	4

Our method generated comments that mention external sources more often.

	Mentions of Ext. Resources		
	no	yes	(cr / wr / sb)
HUMAN	54	46	(5 / 0 / 41)
BASE	51	49	(13 / 9 / 27)
MULTI	46	54	(11 / 2 / 41)

cr: correct, wr: wrong, and sb: subtle

Generated Samples (Translation)

HUMAN Tokyo stocks open 300 yen higher with a continual rise, **due to easing Brexit concerns**.
BASE Tokyo stocks open 300 yen higher with a continual rise, **helped by a cheaper yen and US stock rise**.
MULTI Tokyo stocks open 300 yen higher with a continual rise, **thanks to demand for export-related shares boosted by a cheaper yen**.