

삼성전기 AI전문가 양성과정 - 프로젝트 실습 (비영상)

Airline Passengers

현청천

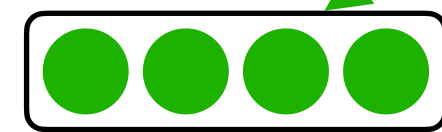
2022.02.28

Data

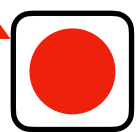
- <https://www.kaggle.com/rakannimer/air-passengers>
- 1949년 1월 ~ 1960년 12월 까지 월별 국제선 항공기 승객수
 - Month: yyyy-mm
 - Passengers: Passengers
- Train: 1949년 1월 ~ 1958년 12월 (120개)
- Test: 1959년 1월 ~ 1960년 12월 (24개)

Multi-Layer Perceptron

Month	1949-01	1949-02	1949-03	1949-04	1949-05	1949-06	1949-07	1949-08	1949-09	1940-10	...
Passenger s	112	118	132	129	121	135	148	148	136	119	...

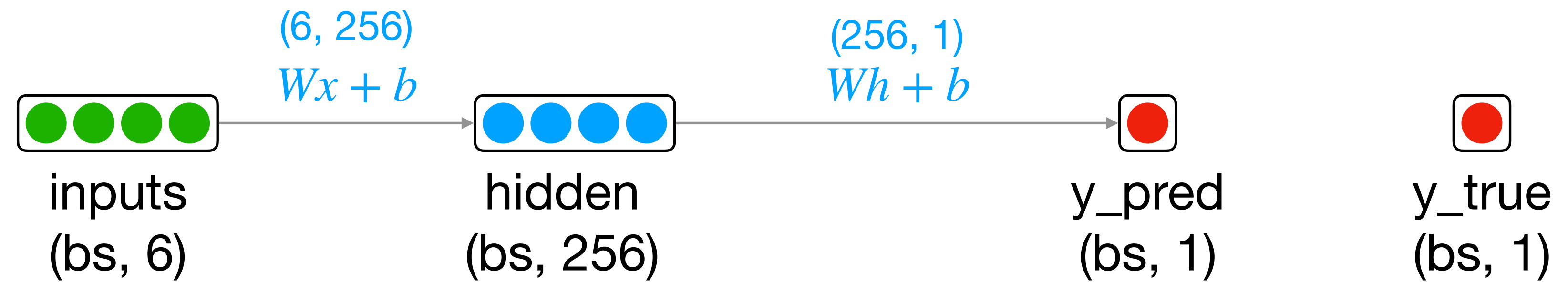


inputs
(bs, 6)



y_true
(bs, 1)

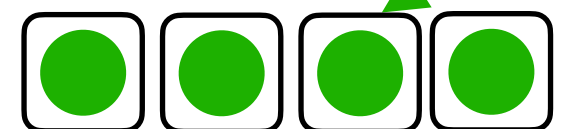
Multi-Layer Perceptron

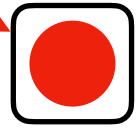


$$\text{MSE} = \frac{1}{N} \sum_{i=1}^N (y - \hat{y})^2$$

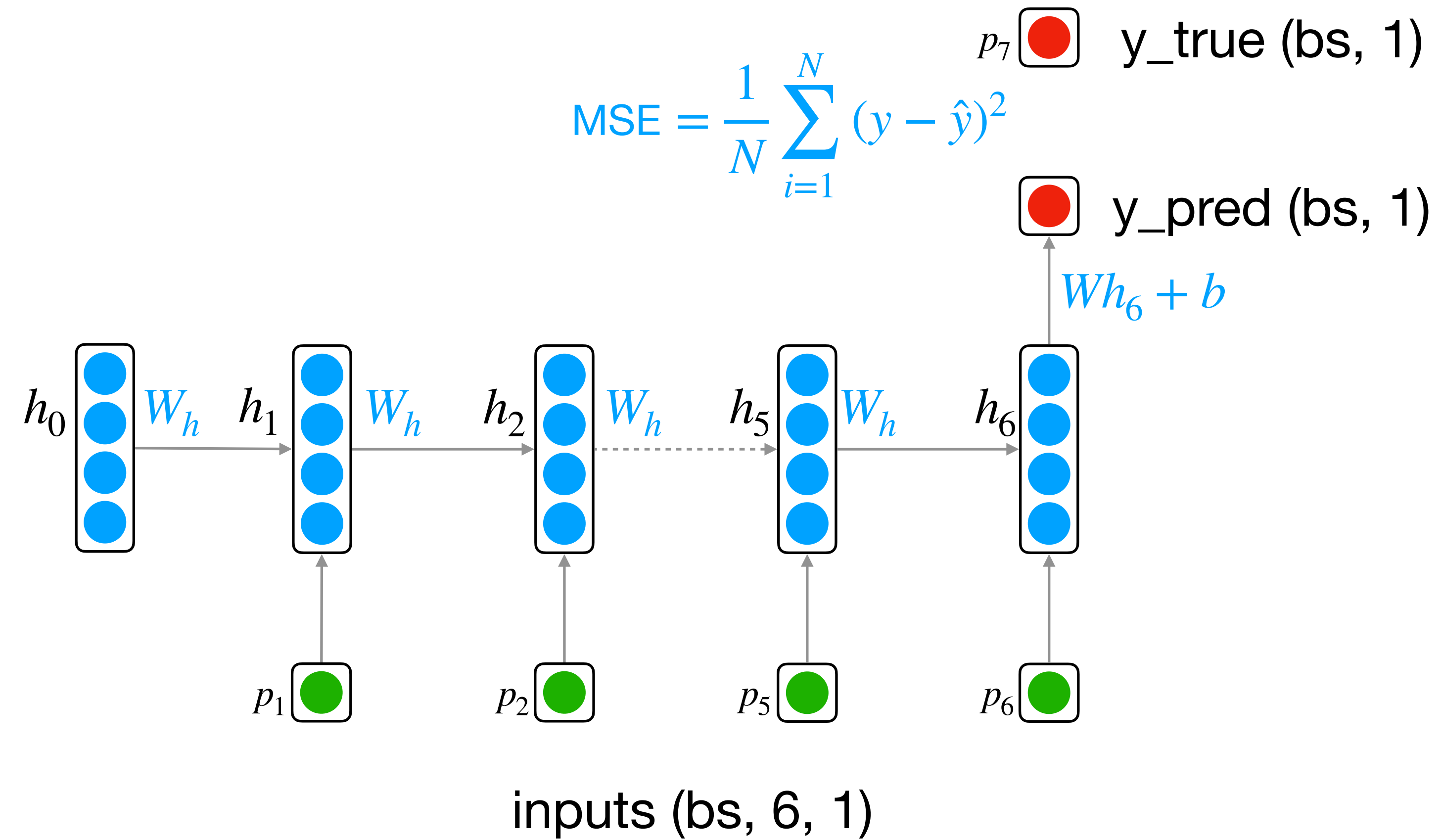
RNN feature 1

Month	1949-01	1949-02	1949-03	1949-04	1949-05	1949-06	1949-07	1949-08	1949-09	1940-10	...
Passenger s	112	118	132	129	121	135	148	148	136	119	...


inputs
(bs, 6, 1)


y_true
(bs, 1)

RNN feature 1

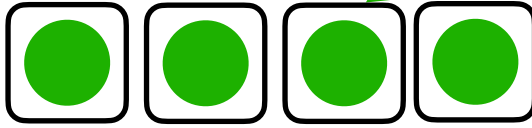



RNN feature 1 (scale)

Month	1949-01	1949-02	1949-03	1949-04	1949-05	1949-06	1949-07	1949-08	1949-09	1949-10	...
Passengers	112	118	132	129	121	135	148	148	136	119	...

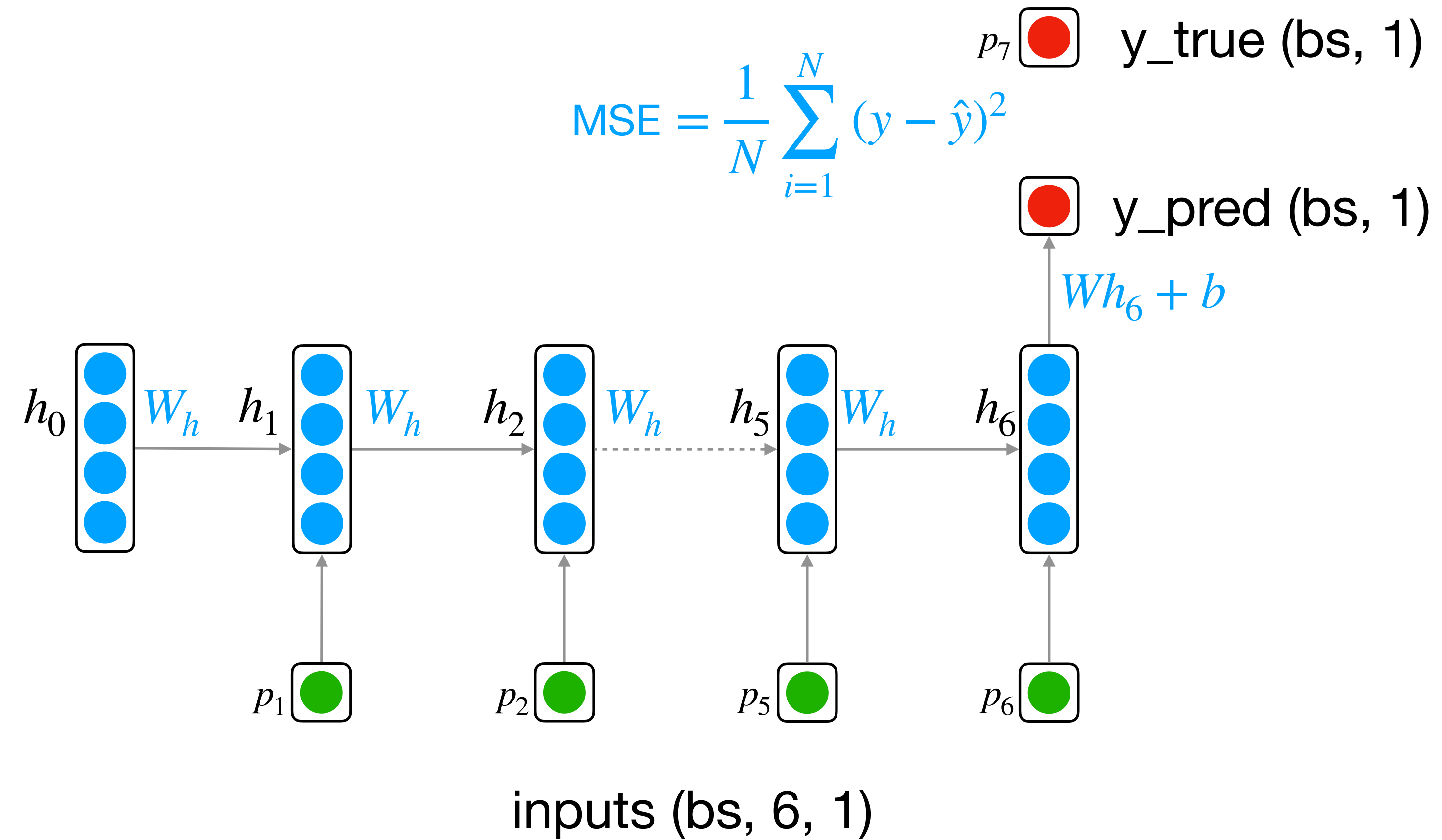
Min Max Scale

Min Max Scale


inputs
(bs, 6, 1)


y_true
(bs, 1)

RNN feature 1 (scale)

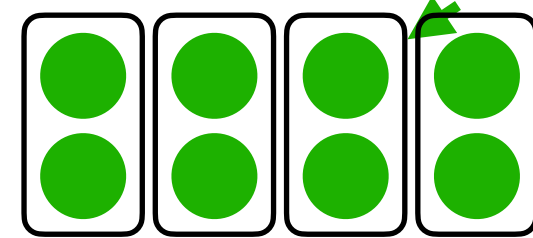


RNN feature 2 (scale)

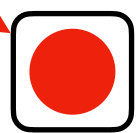
Month	1949-01	1949-02	1949-03	1949-04	1949-05	1949-06	1949-07	1949-08	1949-09	1949-10	...
Passengers	112	118	132	129	121	135	148	148	136	119	...
_Month	1	2	3	4	5	6	7	8	9	10	...

Min Max Scale

Min Max Scale

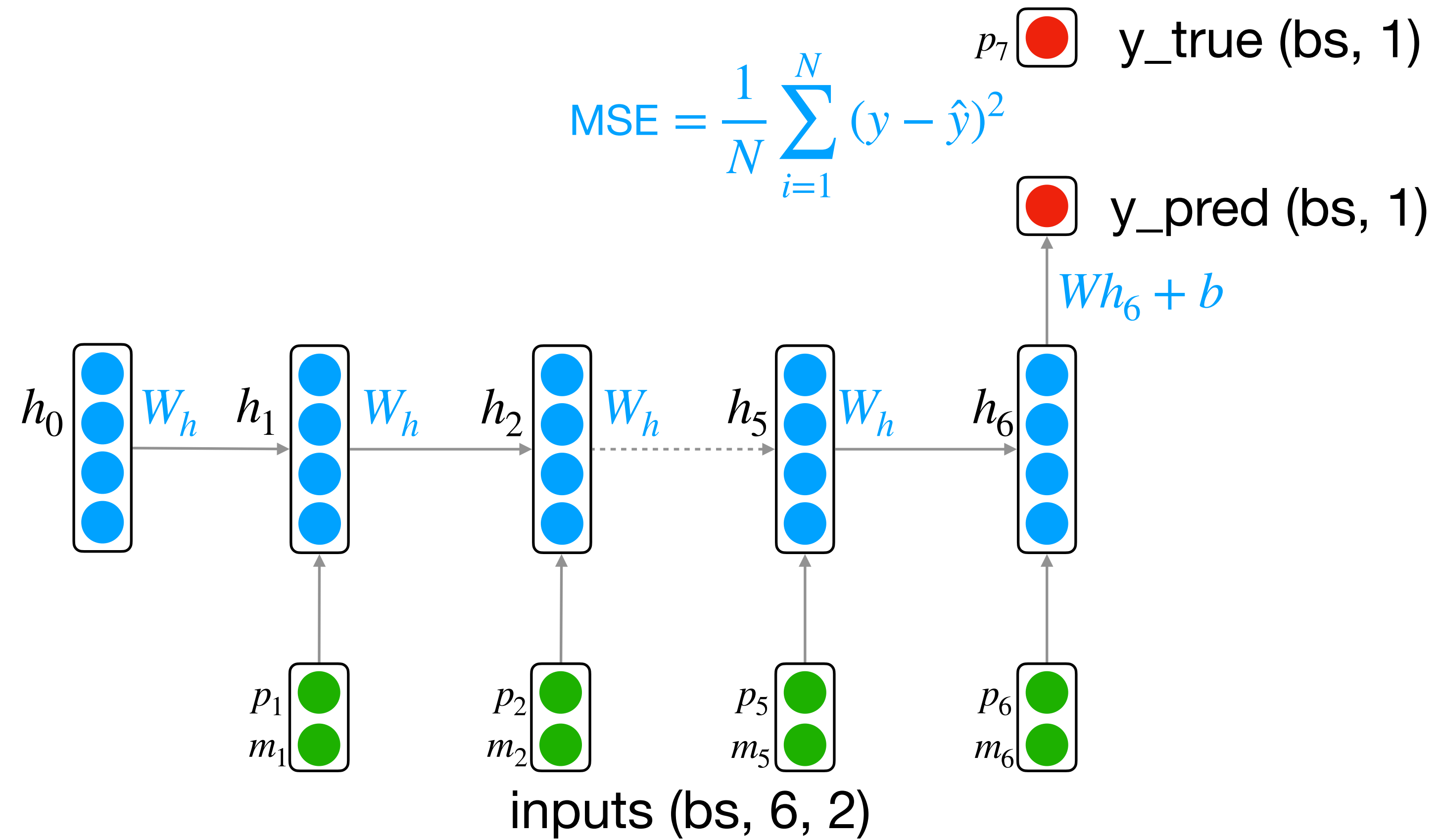


inputs
(bs, 6, 2)



y_true
(bs, 1)

RNN feature 2 (scale)



RNN feature 2 (scale, embedding)

Month	1949-01	1949-02	1949-03	1949-04	1949-05	1949-06	1949-07	1949-08	1949-09	1940-10	...
Passenger s	112	118	132	129	121	135	148	148	136	119	...
_Month	0	1	2	3	4	5	6	7	8	9	...

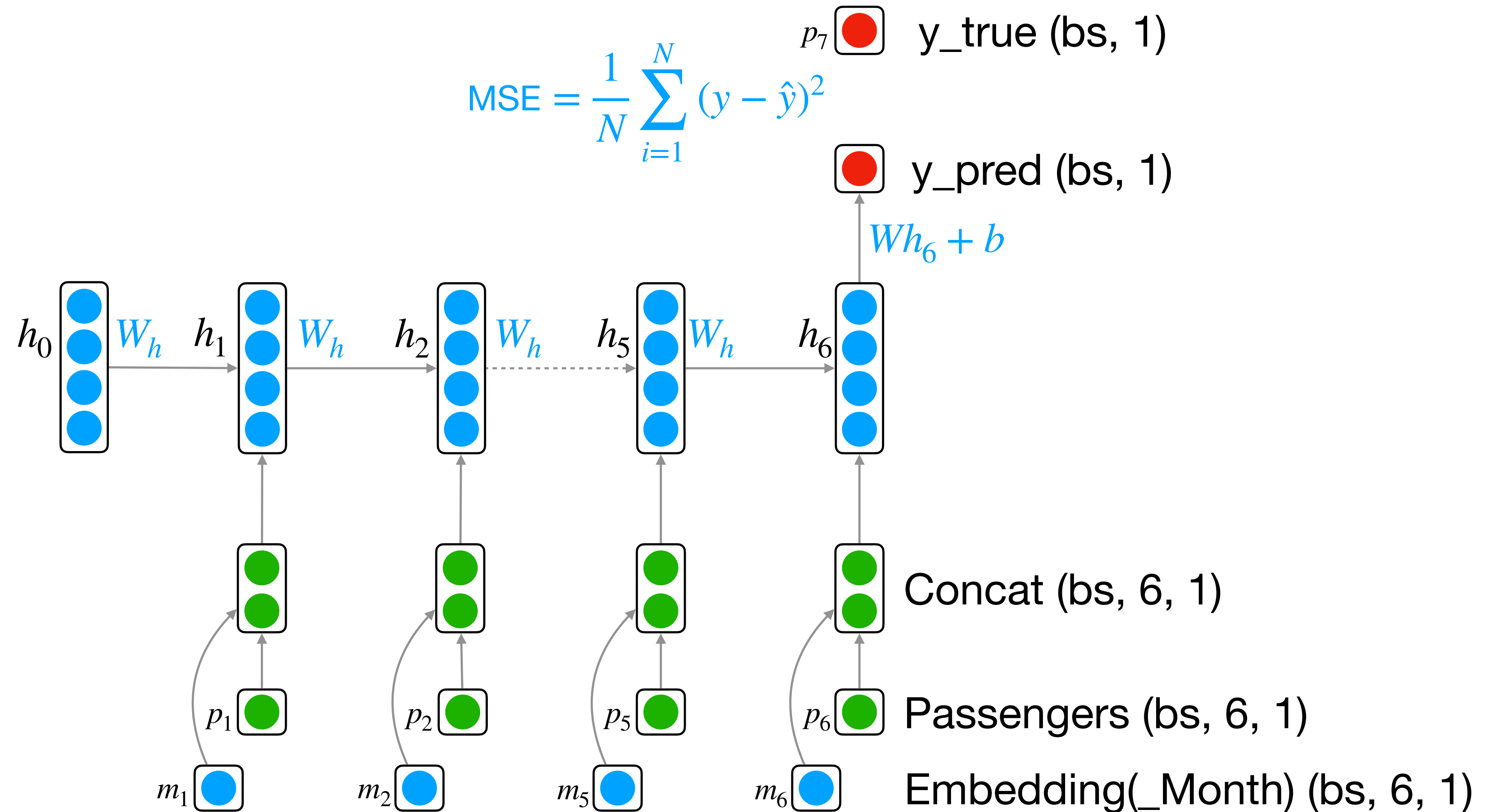
Min Max Scale

Min Max Scale



y_true
(bs, 1)

RNN feature 2 (scale, embedding)

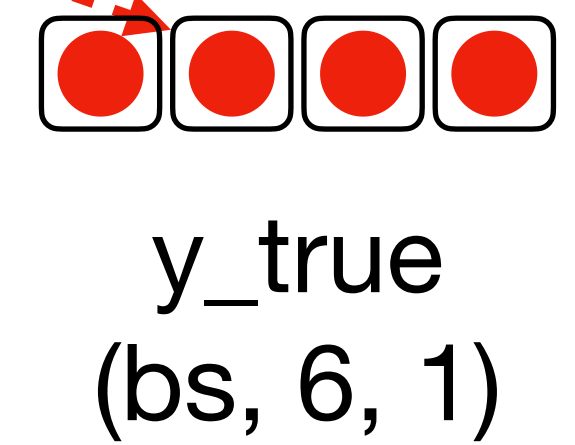


LM feature 2 (scale, embedding)

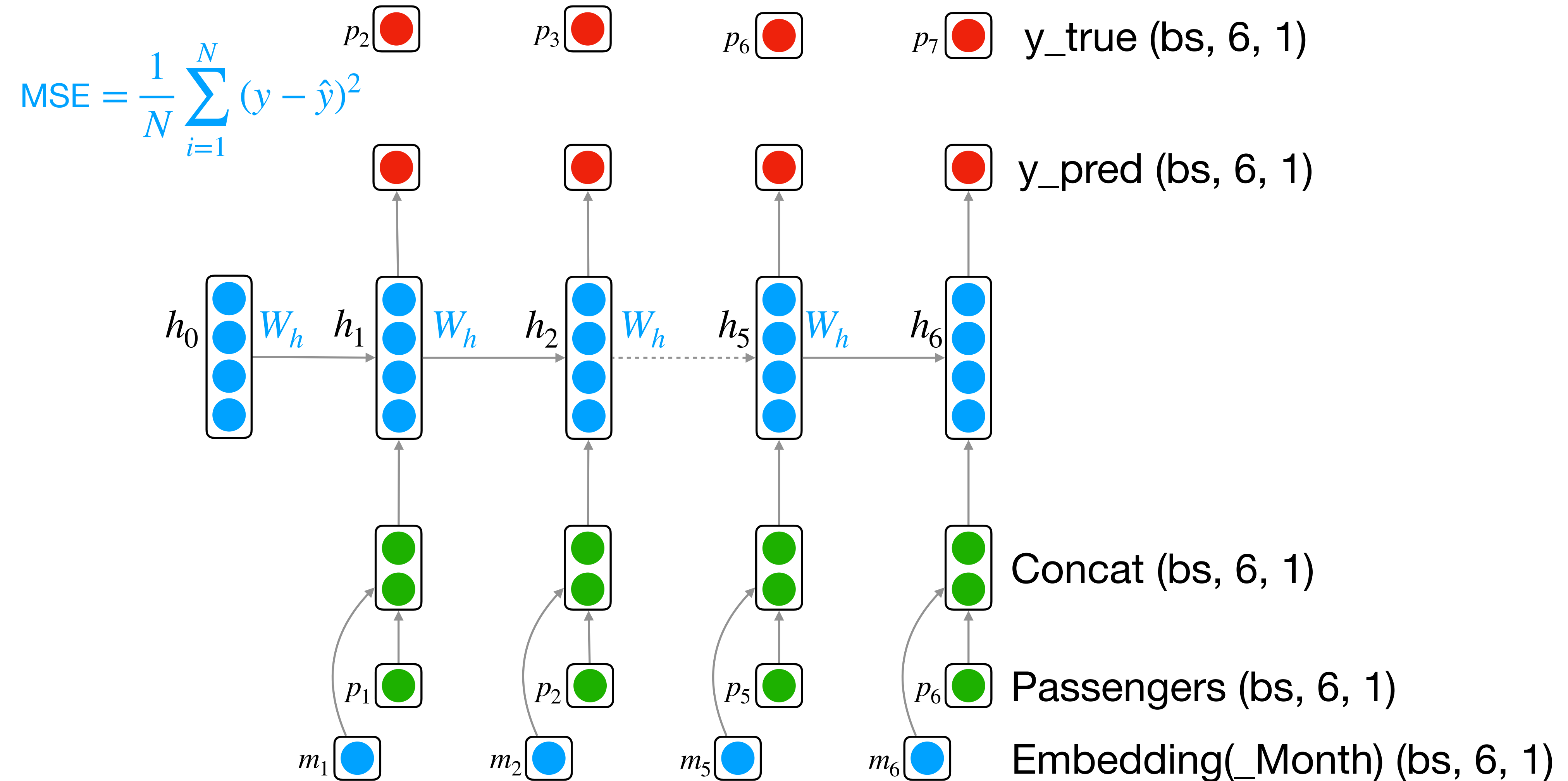
Month	1949-01	1949-02	1949-03	1949-04	1949-05	1949-06	1949-07	1949-08	1949-09	1940-10	...
Passenger s	112	118	132	129	121	135	148	148	136	119	...
_Month	0	1	2	3	4	5	6	7	8	9	...

Min Max Scale

Min Max Scale



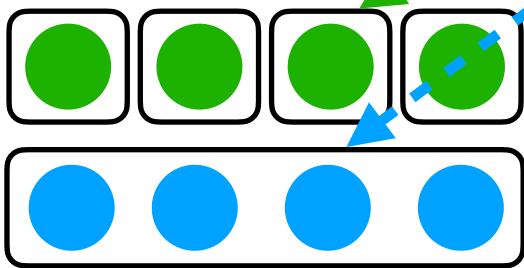
LM feature 2 (scale, embedding)



Seq2Seq feature 2 (scale, embedding)

Month	1949-01	1949-02	1949-03	1949-04	1949-05	1949-06	1949-07	1949-08	1949-09	1940-10	...
Passenger s	112	118	132	129	121	135	148	148	136	119	...
_Month	0	1	2	3	4	5	6	7	8	9	...

Min Max Scale

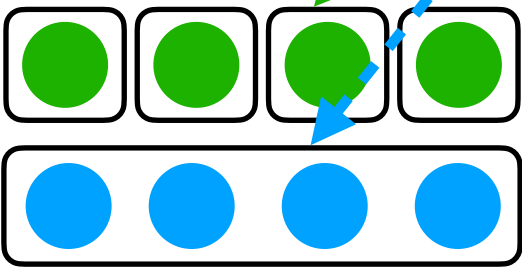


Passengers (bs, 6, 1)

_Month (bs, 6)

Encoder Inputs

Min Max Scale

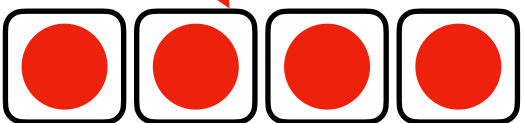


Passengers (bs, 6, 1)

_Month (bs, 6)

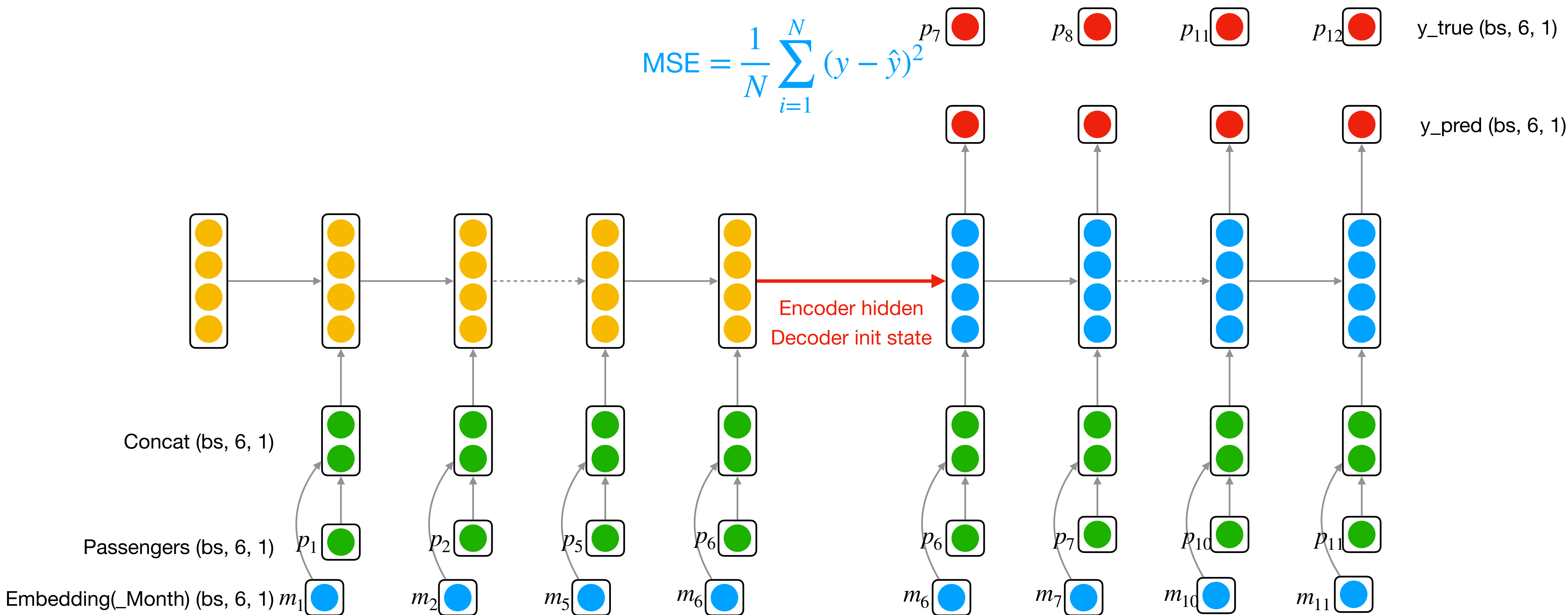
Decoder Inputs

Min Max Scale



y_true
(bs, 6, 1)

Seq2Seq feature 2 (scale, embedding)



감사합니다.