TSG-RAN Working Group 1 meeting No. 17 *TSGR1-00-1344*
November 21 – 24, Stockholm, Sweden

Source: NTT DoCoMo

Title: Corrections for FDD part of TR 25.944

Document for: Approval

Introduction

Attached CR includes corrections for FDD part of TR 25.944, which is based on technical reasons. These corrections are aligned with latest version of the Typical Radio Parameter Sets from GSMA ISG.

Corrections in the FDD Part of the TR 25.944

Section 4.1.1.2 Example for PCH and FACH

?? It was found that 64 bits are not enough for a paging message, which has an IMSI, and 80 bits are needed for the IMSI. Therefore, TrBlk size of 64 bits was replaced by 80 bits.

?? Transport block set size of 168x3 bits was deleted since very high Tx peek power is required for SCCPCH and coding block segmentation is needed.

Section 4.1.1.3.1.1 Example for 3.4 kbps data

?? The number of bits after radio frame segmentation in figure 3 was corrected.

Section 4.1.1.3.1.2 and 4.1.2.2.1.2 Example for 12.2 kbps data

?? In table 17 of section 4.1.2.2.1.2, transport block size and TFCS were changed so that the CRC attachment for 0 TrBlk size is not applied to uplink in order to avoid a concern on additional overhead on uplink Iub caused by CRC OK/NG indication during DTX. Please note that the CRC attachment for 0 TrBlk size is still applied to TrCH#a in downlink (see table 4 of section 4.1.1.3.1.2) since no CRC OK/NG indication is transmitted on downlink Iub and the CRC attachment for 0 TrBlk can be used for improvement of BTFD accuracy.

?? In table 4 of section 4.1.1.3.1.2, 0 transport block size for TrCh#b and TrCh#c are deleted in order to keep commonality with uplink.

?? In TFCS of table 4 and table 17, number of transport block is clarified.

Section 4.1.1.3.1.4 and 4.1.2.2.1.4 Example for 64/128/144 kbps packet data

?? TF of 3x336 bits for 64 kbps was added to avoid additional transmission delay. Please note that the TF of 3x336 is not added for 128 and 144 kbps to avoid degradation of TFCI detection accuracy.

Section 4.1.1.3.1.5 and 4.1.2.2.1.5 Example for 384 kbps packet data

?? TF of 16x336 and 20x336 were added for TTI of 20 ms to avoid additional transmission delay.

Section 4.1.1.3.2.1 Example for Stand-alone mapping of 3.4 kbps data

?? Numbers of pilot bits of the slot format was changed from 8 bits to 4 bits to use shorter (1 slot) adjustment delay of feedback command for closed loop mode Tx diversity in as a big cell as possible.

Section 4.1.2.1 Example for RACH

?? TTI of 10 ms was replaced by 20 ms since it is better to use TTI of 20 ms for PRACH from link budget point of view.

3GPP Meeting RAN WG1#17
Stockholm, Sweden, 2000

Document R1-00-1344
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

TR 25.944	**CR**	**003**	Current Version:	3.2.0

GSM (AA.BB) or 3G (AA.BBB) specification number ? *? CR number as allocated by MCC support team*

For submission to: RAN#10 *list expected approval meeting # here ?*

for approval [X]
for information [ ]

strategic [ ]
non-strategic [ ]
(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [X] Core Network [ ]

Source: NTT DoCoMo **Date:** 21st Nov. 2000

Subject: Corrections for FDD part of TR 25.944

Work item: TR 25.944

Category: *(only one category shall be marked with an X)*

F	Correction	[X]	**Release:**	Phase 2	[ ]
A	Corresponds to a correction in an earlier release	[ ]		Release 96	[ ]
B	Addition of feature	[ ]		Release 97	[ ]
C	Functional modification of feature	[ ]		Release 98	[ ]
D	Editorial modification	[ ]		Release 99	[X]
				Release 00	[ ]

Reason for change: This CR includes corrections for FDD part of TR 25.944, which is based on technical reasons. These corrections are aligned with latest version of the Typical Radio Parameter Sets from GSMA ISG.

Clauses affected: Section 4

Other specs affected:

Other 3G core specifications	[ ]	?	List of CRs:
Other GSM core specifications	[ ]	?	List of CRs:
MS test specifications	[ ]	?	List of CRs:
BSS test specifications	[ ]	?	List of CRs:
O&M specifications	[ ]	?	List of CRs:

Other comments:

4.1.1.2 Example for PCH and FACH

Table 2: Parameter examples for PCH and FACH

Transport block size	PCH	N_{PCH}=8064 or 240 bits
	FACH1	360 bits
	FACH2	168 bits
Transport block set size	PCH	8064*B_{PCH} or 240* B_{PCH} bits (B_{PCH}=0, 1)
	FACH1	360*B_{FACH1} bits (B_{FACH1}=0, 1)
	FACH2	168*B_{FACH2} bits (B_{FACH2}=0, 1, 2)
Coding	PCH, FACH2	CC, coding rate = 1/2
	FACH1	TC
TTI		10 ms
The numbers of codes		1
SF		64

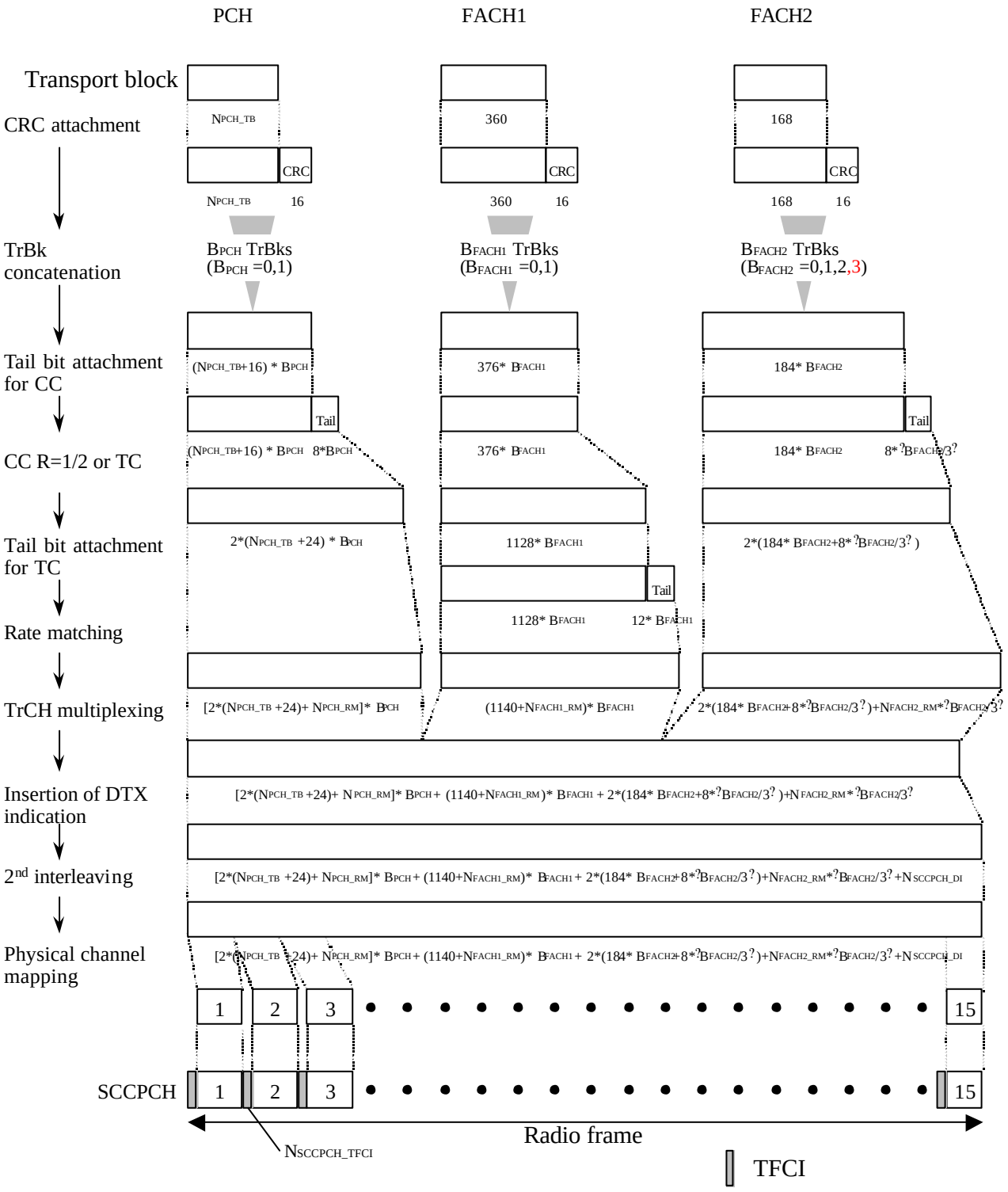


Figure 2: Channel coding and multiplexing example for PCH and FACH

4.1.1.3 Example for DCH

4.1.1.3.1 DCH-> Radio frame segmentation

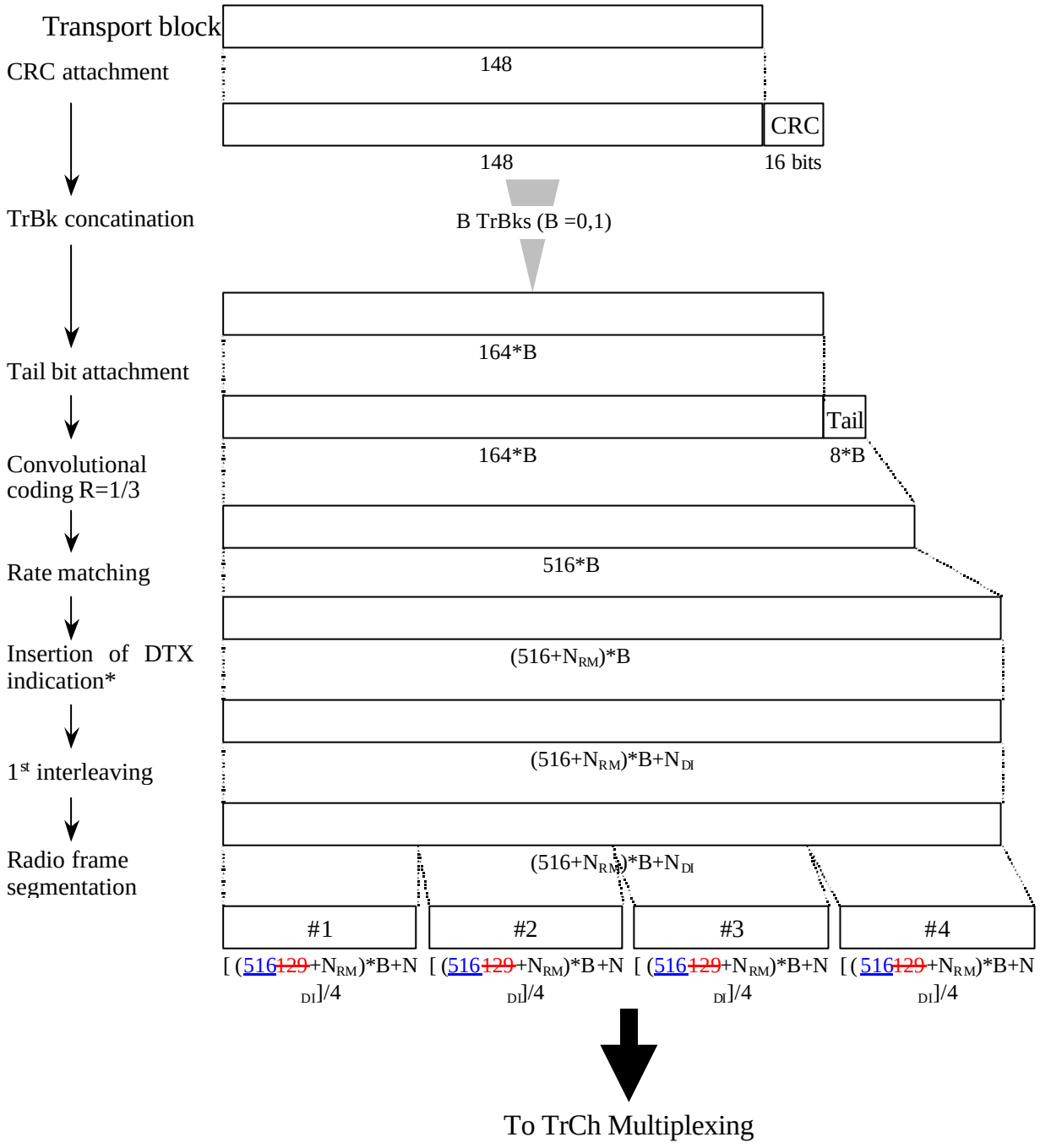
4.1.1.3.1.1 Example for 3.4 kbps data

NOTE: This example can be applied to DCCH.

NOTE: In this example, it is assumed that maximum data rate of RLC payload is 3.4 kbps, and that MAC and RLC overhead in a transport block is 12 bits.

Table 3: Parameter examples for 3.4 kbps data

Transport block size	148 bits
Transport block set size	148*B bits (B=0, 1)
CRC	16 bits
Coding	CC, coding rate = 1/3
TTI	40 ms



* Insertion of DTX indication is used only if the position of the TrCHs in the radio frame is fixed.

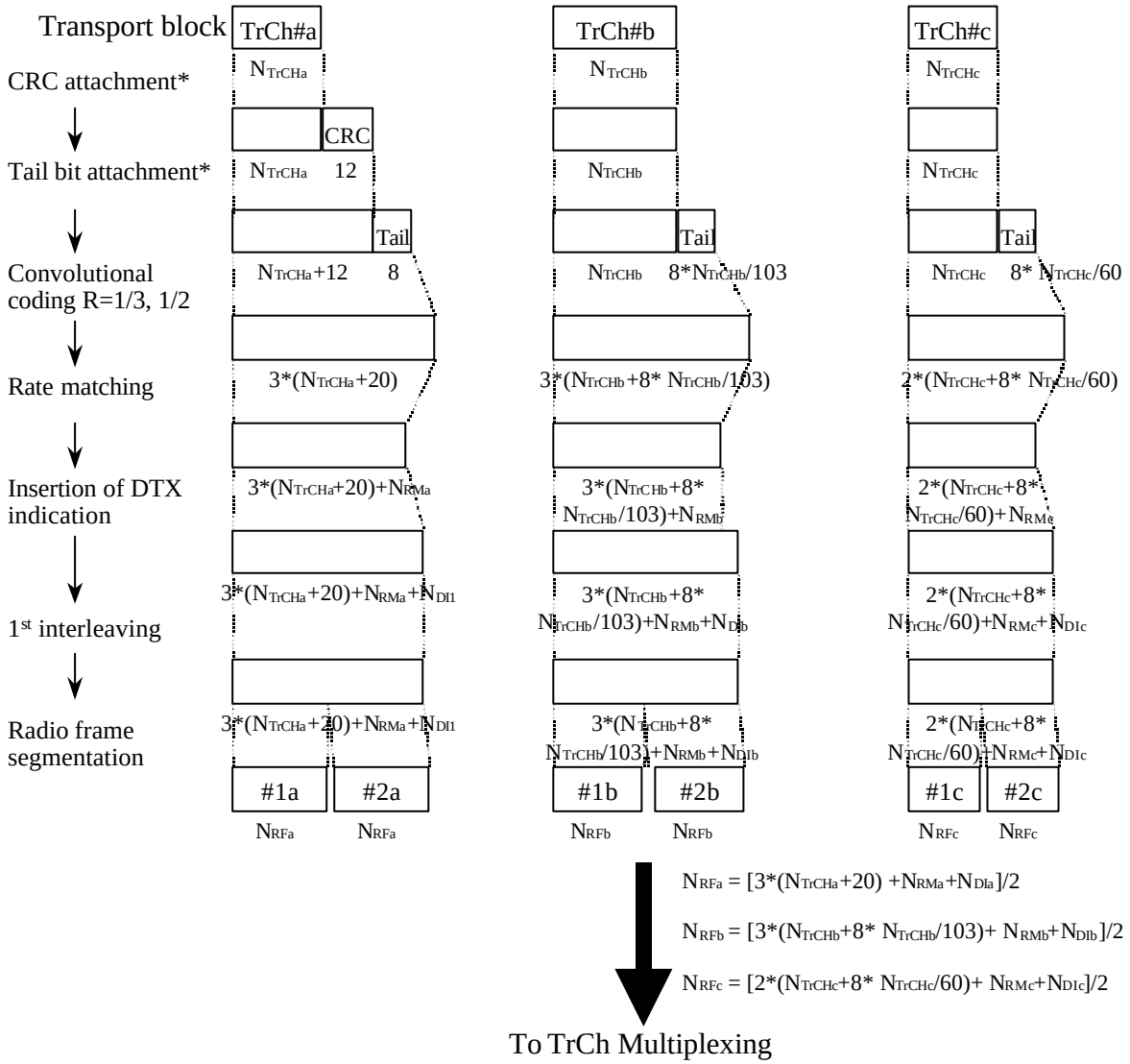
Figure 3: Channel coding and multiplexing example for 3.4 kbps data

4.1.1.3.1.2 Example for 12.2 kbps data

NOTE: This example can be applied to AMR speech.

Table 4: Parameter examples for 12.2 kbps data

The number of TrChs		3
Transport block size	TrCH#a	~~N_{TrCHa}=~~0, 39 or 81bits
	TrCH#b	~~N_{TrCHb}=0 or~~ 103 bits
	TrCH#c	~~N_{TrCHc}=0 or~~ 60 bits
TFCS	#1	N_{TrCHa}=1*81, N_{TrCHb}=1*103, N_{TrCHc}=1*60 bits
	#2	N_{TrCHa}=1*39, N_{TrCHb}=0*103, N_{TrCHc}=0*60 bits
	#3	N_{TrCHa}=1*0, N_{TrCHb}=0*103, N_{TrCHc}=0*60 bits
CRC		12 bits (attached only to TrCh#a)
CRC parity bit attachment for 0 bit transport block		Applied only to TrCH#a
Coding		CC, coding rate = 1/3 for TrCh#a, b coding rate = 1/2 for TrCh#c
TTI		20 ms



* CRC and tail bits for TrCH#a is attached even if N_{TrCha}=0 bits since CRC parity bit attachment for 0 bit transport block is applied.

Figure 4: Channel coding and multiplexing example for 12.2 kbps data

4.1.1.3.1.3 Example for 28.8/57.6 kbps data

NOTE: This example can be applied to Modem or FAX.

Table 5: Parameters for 28.8/57.6 kbps data

The number of TrChs		1
Transport block size		576 bits
Transport block Set size	28.8 kbps	576*B bits (B = 0, 1, 2)
	57.6 kbps	576*B bits (B = 0, 1, 2, 3, 4)
CRC		16 bits
Coding		Turbo coding, coding rate = 1/3
TTI		40 ms

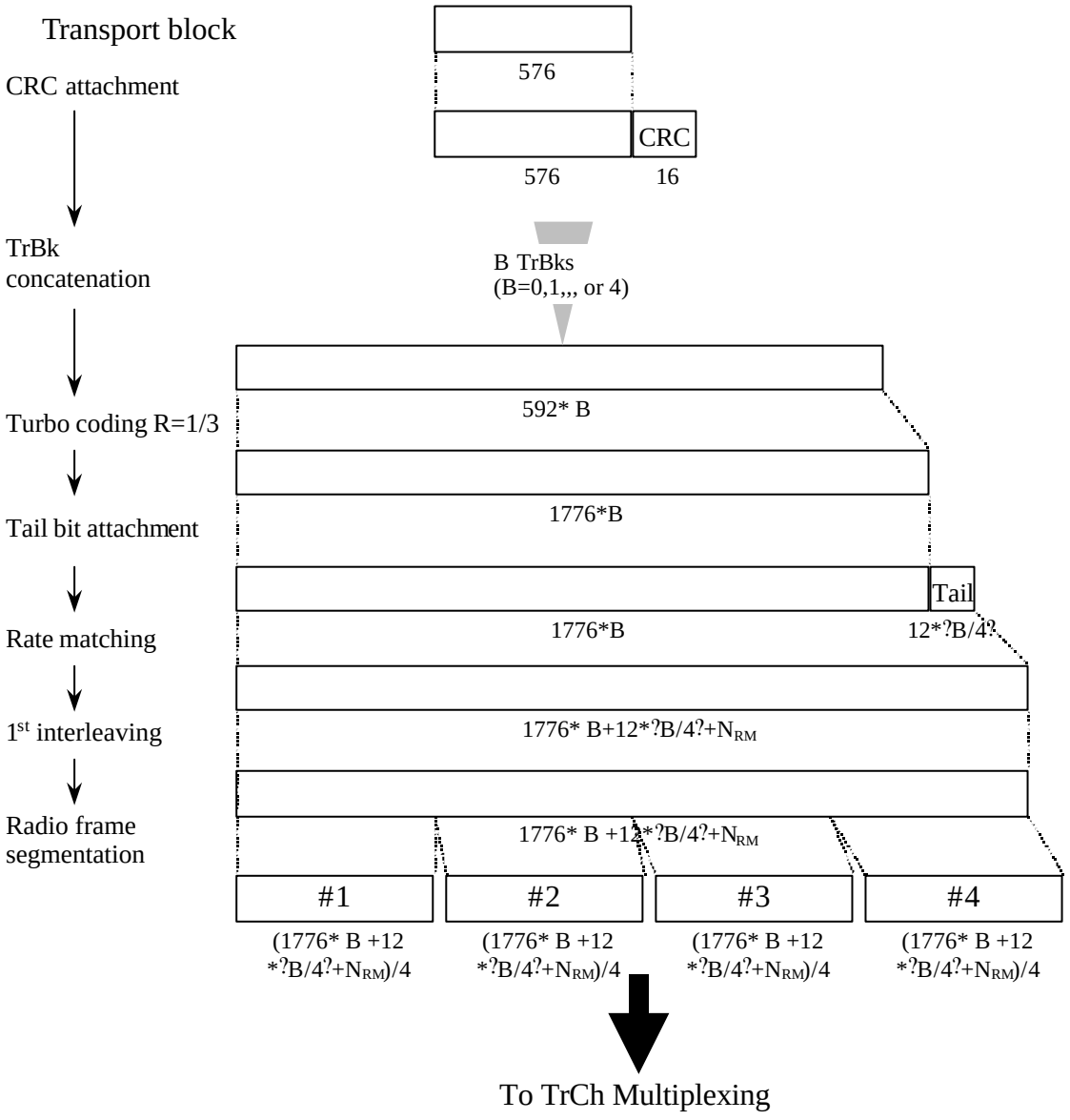


Figure 5: Channel coding and multiplexing example for 28.8/57.6 kbps data

4.1.1.3.1.4 Example for 64/128/144 kbps packet data

NOTE: In this example, it is assumed that maximum data rate of RLC payload is 64/128/144 kbps, and MAC and RLC overhead in a transport block is 16 bits.

Table 6: Parameters for 64/128/144 kbps packet data

The number of TrChs		1
Transport block size		336 bits
Transport block Set size	64 kbps	336*B bits (B = 0, 1, 2, 3, 4)
	128 kbps	336*B bits (B = 0, 1, 2, 4, 8)
	144 kbps	336*B bits (B = 0, 1, 2, 4, 8, 9)
CRC		16 bits
Coding		Turbo coding, coding rate = 1/3
TTI		20 ms

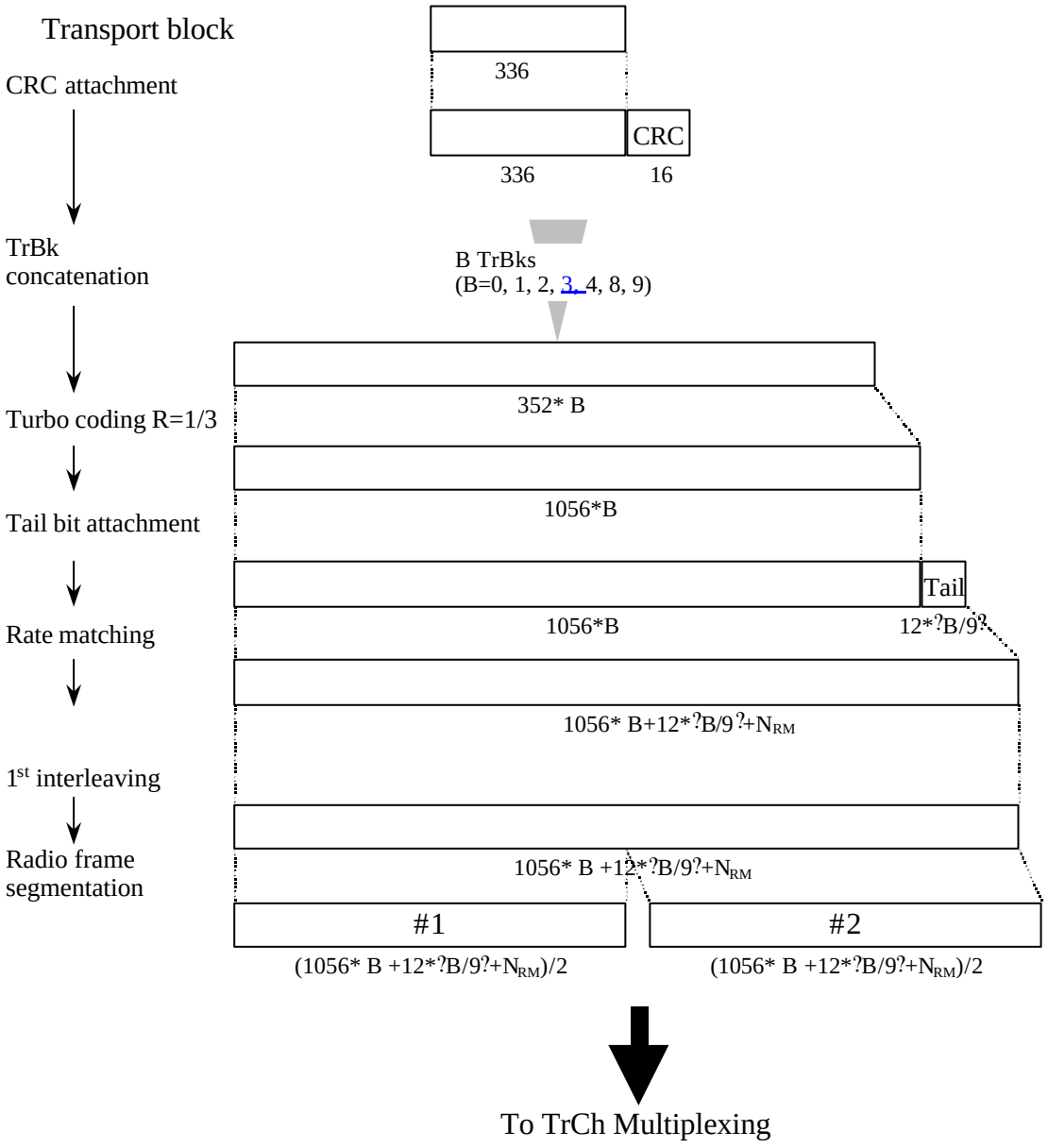


Figure 6: Channel coding and multiplexing example for 64/128/144 kbps packet data

4.1.1.3.1.5 Example for 384 kbps packet data

NOTE: In this example, it is assumed that maximum data rate of RLC payload is 384kbps, and MAC and RLC overhead in a transport block is 16 bits.

Table 7: Parameters for 384 kbps packet data

The number of TrChs	1
Transport block size	336 bits
Transport block Set size	336*B bits (B = 0, 1, 2, 4, 8, 12 for TTI=10 ms, B = 0, 1, 2, 4, 8, 12, 16, 20, 24 for TTI=20 ms)
CRC	16 bits
Coding	Turbo coding, coding rate = 1/3
TTI	10 or 20 ms

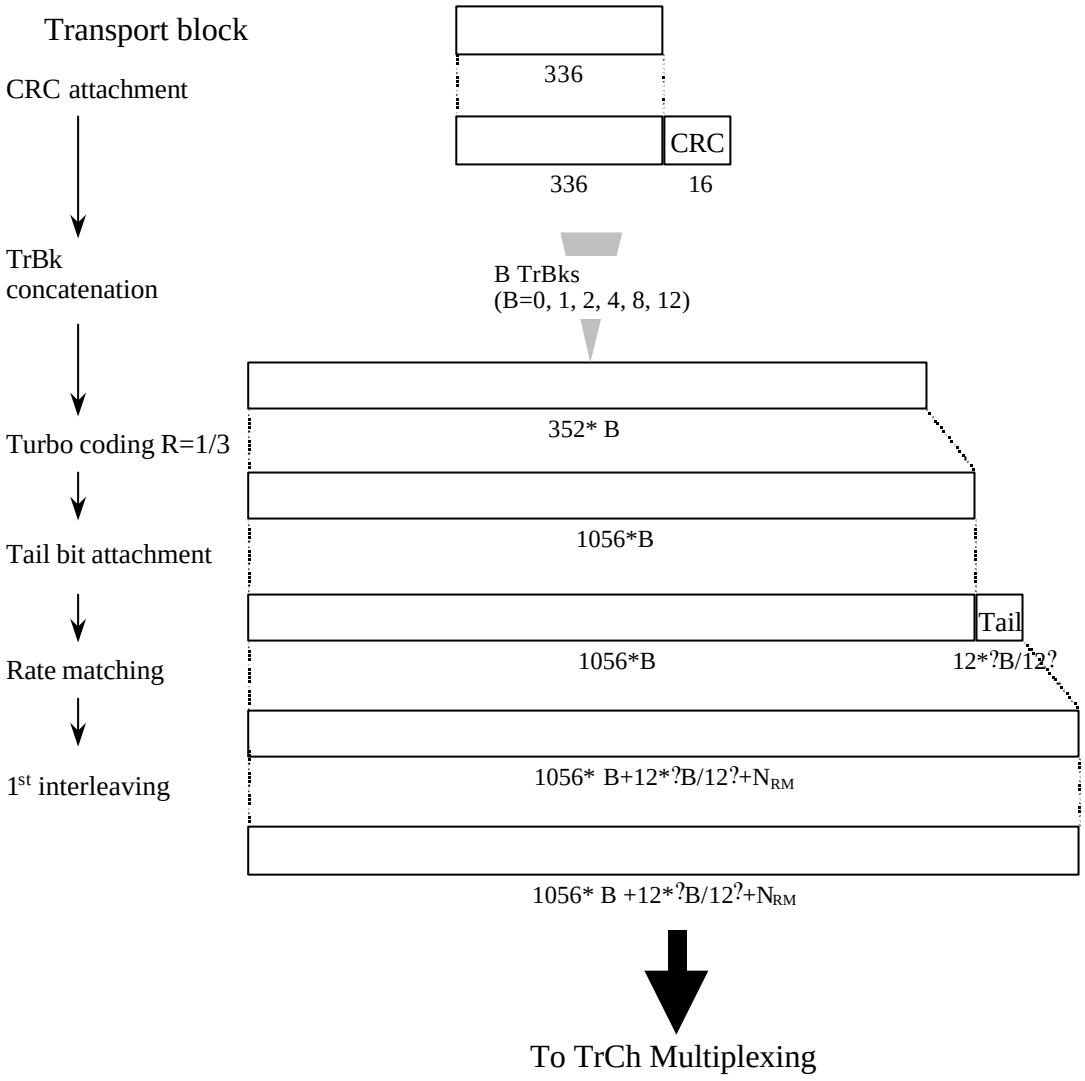


Figure 7: Channel coding and multiplexing example for 384 kbps packet data in case of TTI=10 ms

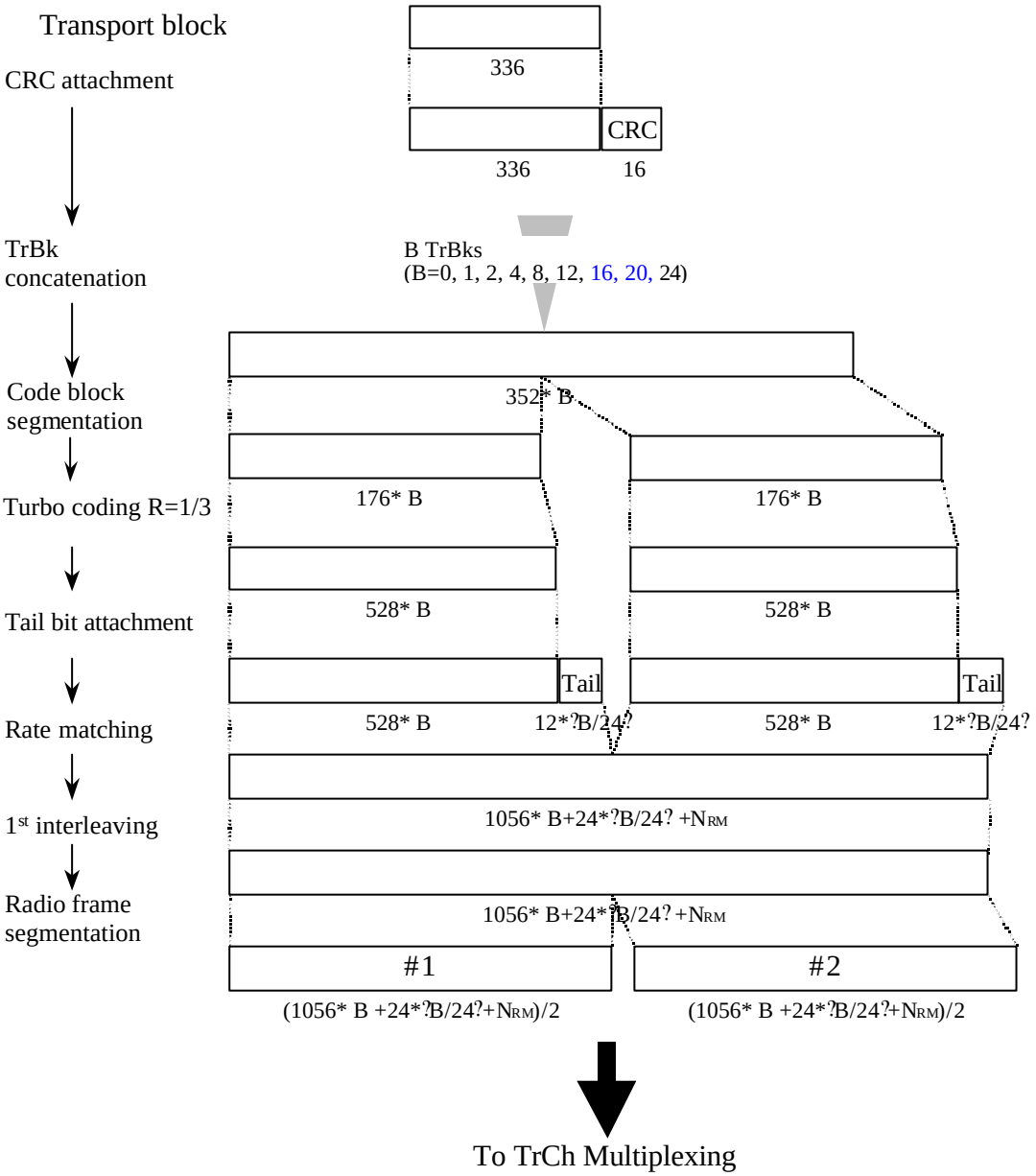


Figure 8: Channel coding and multiplexing example for 384 kbps packet data in case of TTI=20 ms

4.1.1.3.1.6 Example for 64 kbps data

NOTE: This example can be applied to ISDN service.

Table 8: Parameters for 64 kbps data

The number of TrChs	1
Transport block size	640 bits
Transport block set size	4*640 bits
CRC	16 bits
Coding	Turbo coding, coding rate = 1/3
TTI	40 ms

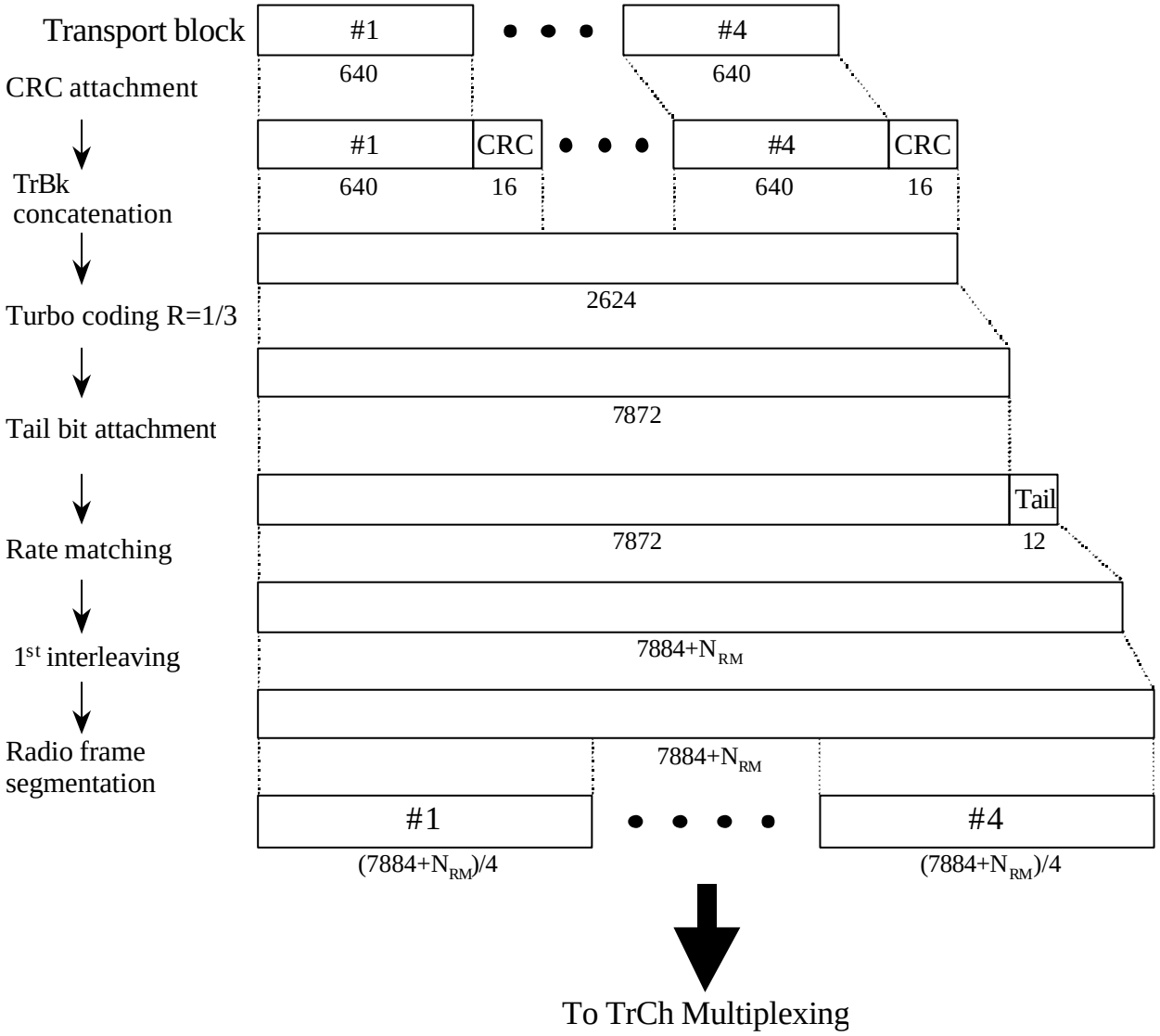


Figure 9: Channel coding and multiplexing example for 64 kbps data

4.1.1.3.2 TrCh multiplexing -> Physical channel mapping

4.1.1.3.2.1 Example for Stand-alone mapping of 3.4 kbps data

NOTE: This example can be applied to Stand-alone mapping of DCCH.

Table 9 shows example of physical channel parameters for stand-alone mapping of 3.4 kbps data.

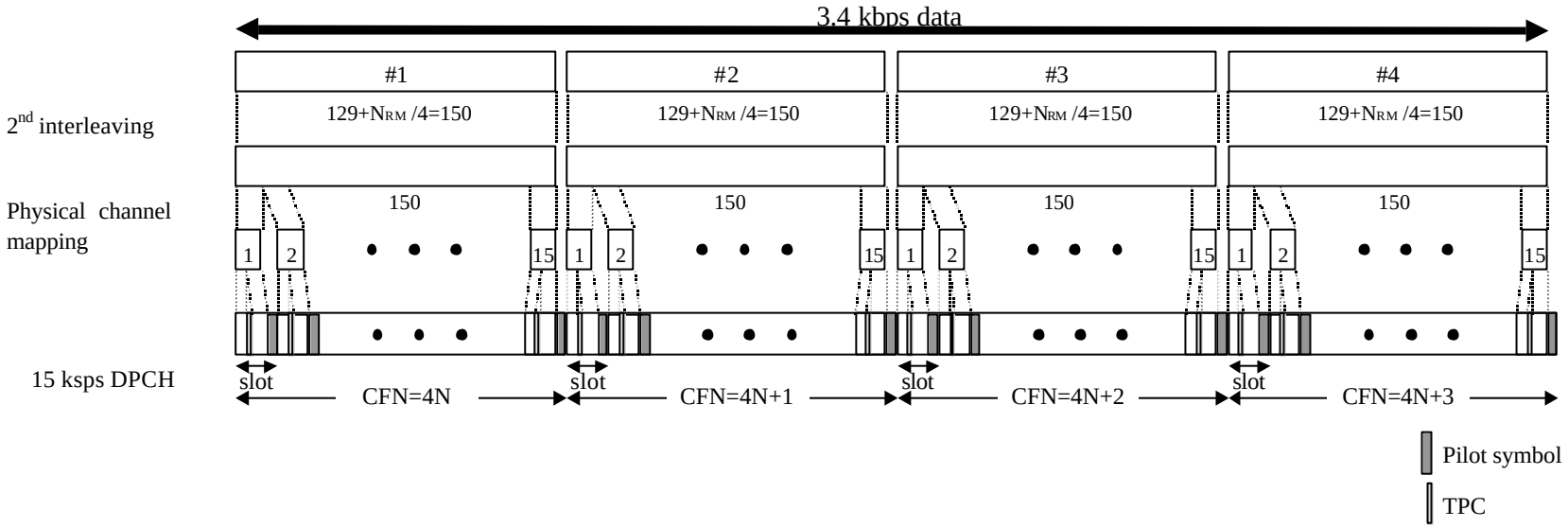


Figure 10: Channel coding and multiplexing example for stand-alone mapping of 3.4 kbps data

Table 9: Physical channel parameters for stand-alone mapping of 3.4 kbps data

Symbol rate (ksps)	N_{pilot} **(bits)**	N_{TFCI} (bits)	N_{TPC} (bits)	N_{data1} (bits)	N_{data2} (bits)
15	4~~8~~	0	2	2	12~~8~~

4.1.2 Uplink

4.1.2.1 Example for RACH

Table 15: Parameter examples for RACH

Transport block size	N_{RACH}=168 or 360 bits
CRC	16 bits
Coding	CC, coding rate = 1/2
TTI	20~~10~~ ms
Minimum spreading factor	32

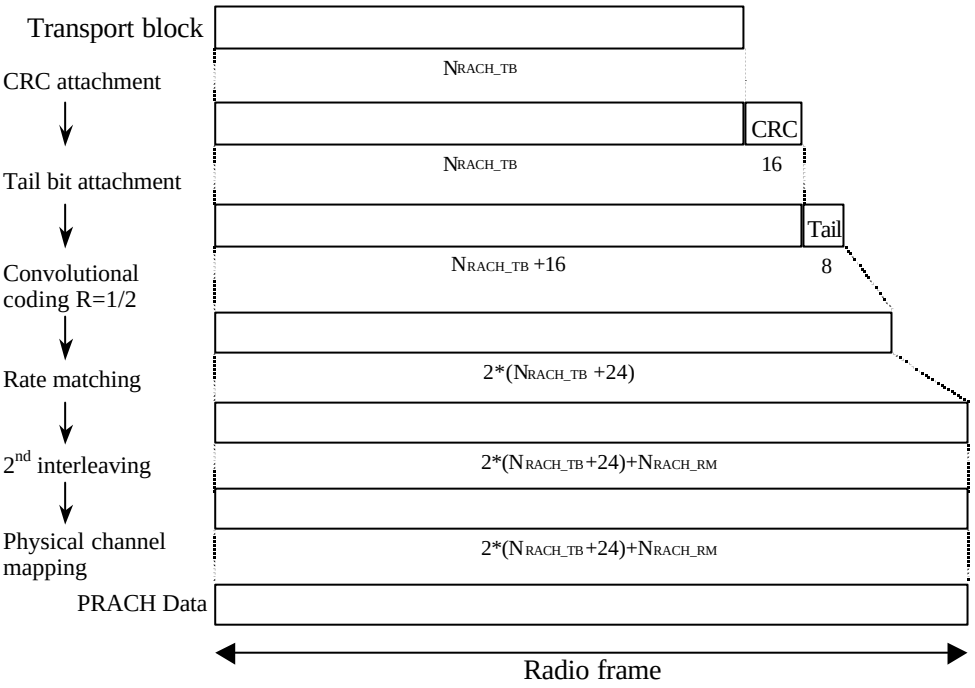


Figure 16: Channel coding and multiplexing example for PRACH

4.1.2.2 Example for DCH

4.1.2.2.1 DCH -> Radio frame segmentation

4.1.2.2.1.1 Example for 3.4 kbps data

NOTE: This example can be applied to DCCH.

NOTE: In this example, it is assumed that maximum data rate of RLC payload is 3.4 kbps, and that MAC and RLC overhead in a transport block is 12 bits.

Table 16: Parameter examples for 3.4 kbps data

Transport block size	148 bits
Transport block set size	0, 148 bits
CRC	16 bits
Coding	CC, coding rate = 1/3
TTI	40 ms

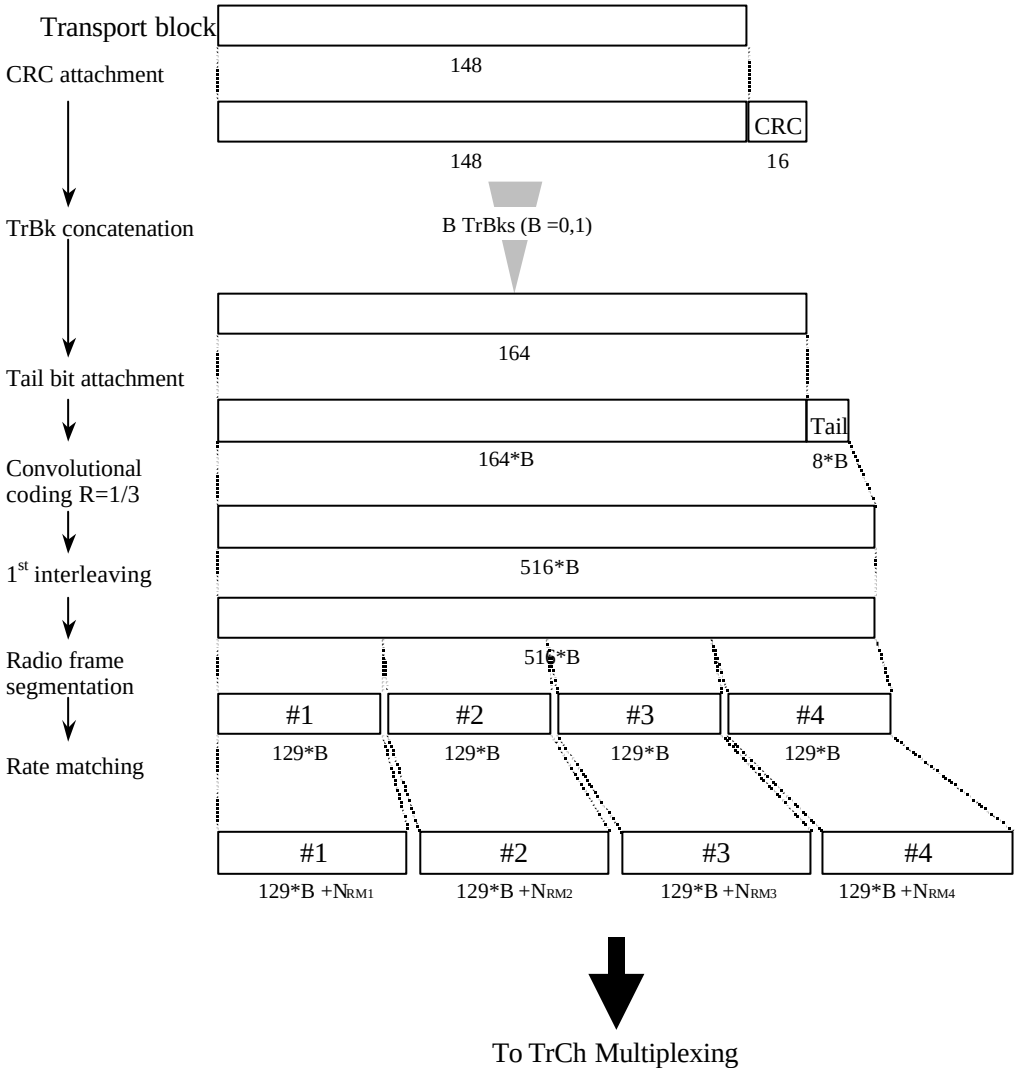


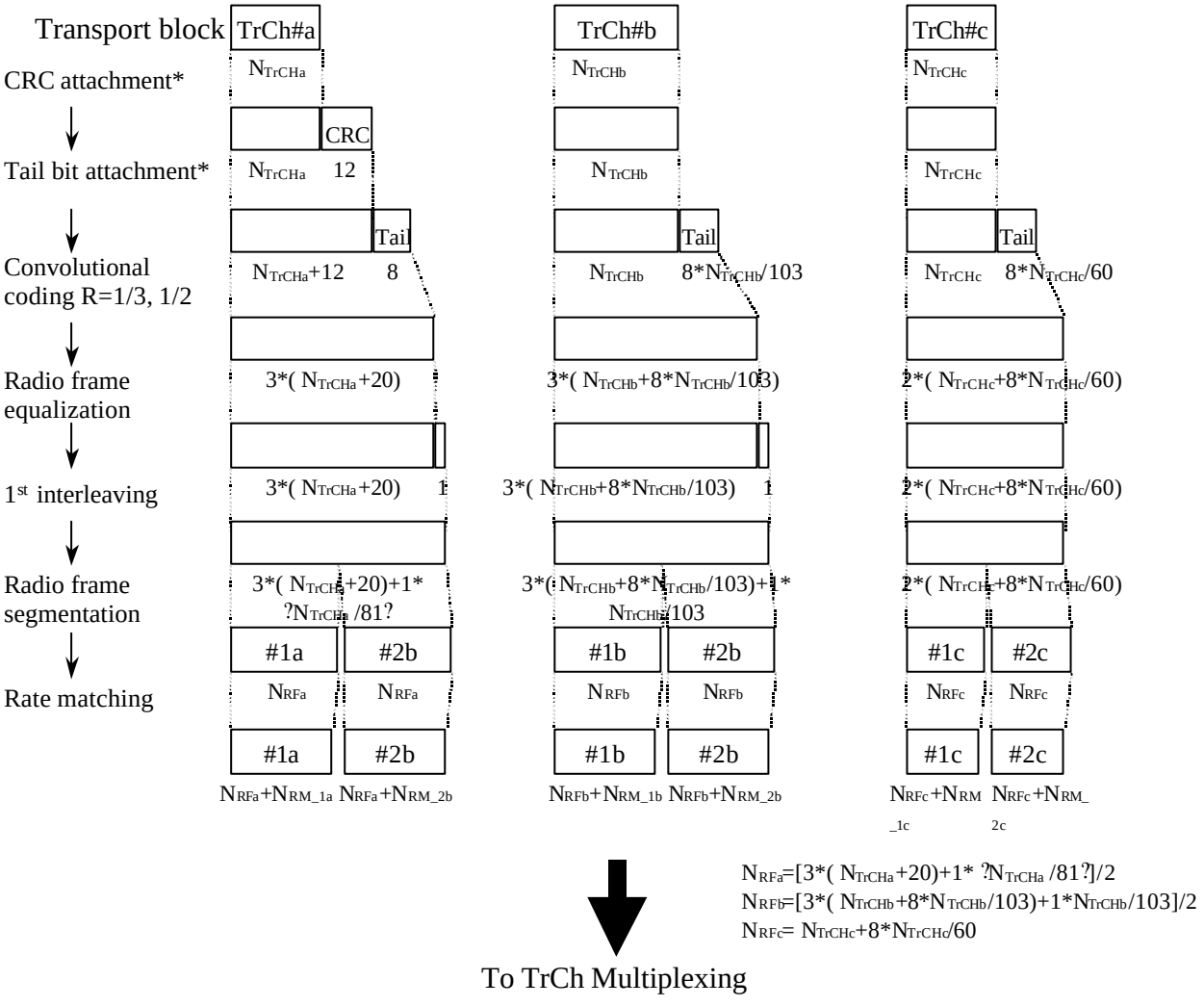
Figure 17: Channel coding and multiplexing example for 3.4 kbps data

4.1.2.2.1.2 Example for 12.2 kbps data

NOTE: This example can be applied to AMR speech.

Table 17: Parameter examples for 12.2 kbps data

The number of TrChs		3
Transport block size	TrCH#a	~~N_{TrCHa}=0,~~ 39 or 81bits
	TrCH#b	~~N_{TrCHb}=0 or~~ 103 bits
	TrCH#c	~~N_{TrCHc}=0 or~~ 60 bits
TFCS	#1	N_{TrCHa}=1*81, N_{TrCHb}=1*103, N_{TrCHc}=1*60 bits
	#2	N_{TrCHa}=1*39, N_{TrCHb}=0*103, N_{TrCHc}=0*103 bits
	#3	N_{TrCHa}=0*810, N_{TrCHb}=0*103, N_{TrCHc}=0*60 bits
CRC		12 bits (attached only to TrCh#a)
~~CRC parity bit attachment for 0 bit transport block~~		~~Applied only to TrCH#a~~
Coding		CC, coding rate = 1/3 for TrCh#a, b coding rate = 1/2 for TrCh#c
TTI		20 ms



* CRC and tail bits for TrCH#a is attached even if N_{TrCha}=0 bits since CRC parity bit attachment for 0 bit transport ~~block is applied.~~

Figure 18: Channel coding and multiplexing example for 12.2 kbps data

4.1.2.2.1.3 Example for 28.8/57.6 kbps data

NOTE: This example can be applied to Modem or FAX.

Table 18: Parameters for 28.8/57.6 kbps packet data

The number of TrChs		1
Transport block size		576 bits
Transport block Set size	28.8 kbps	576*B bits (B = 0, 1, 2)
	57.6 kbps	576*B bits (B = 0, 1, 2, 3, 4)
CRC		16 bits
Coding		Turbo coding, coding rate = 1/3
TTI		40 ms

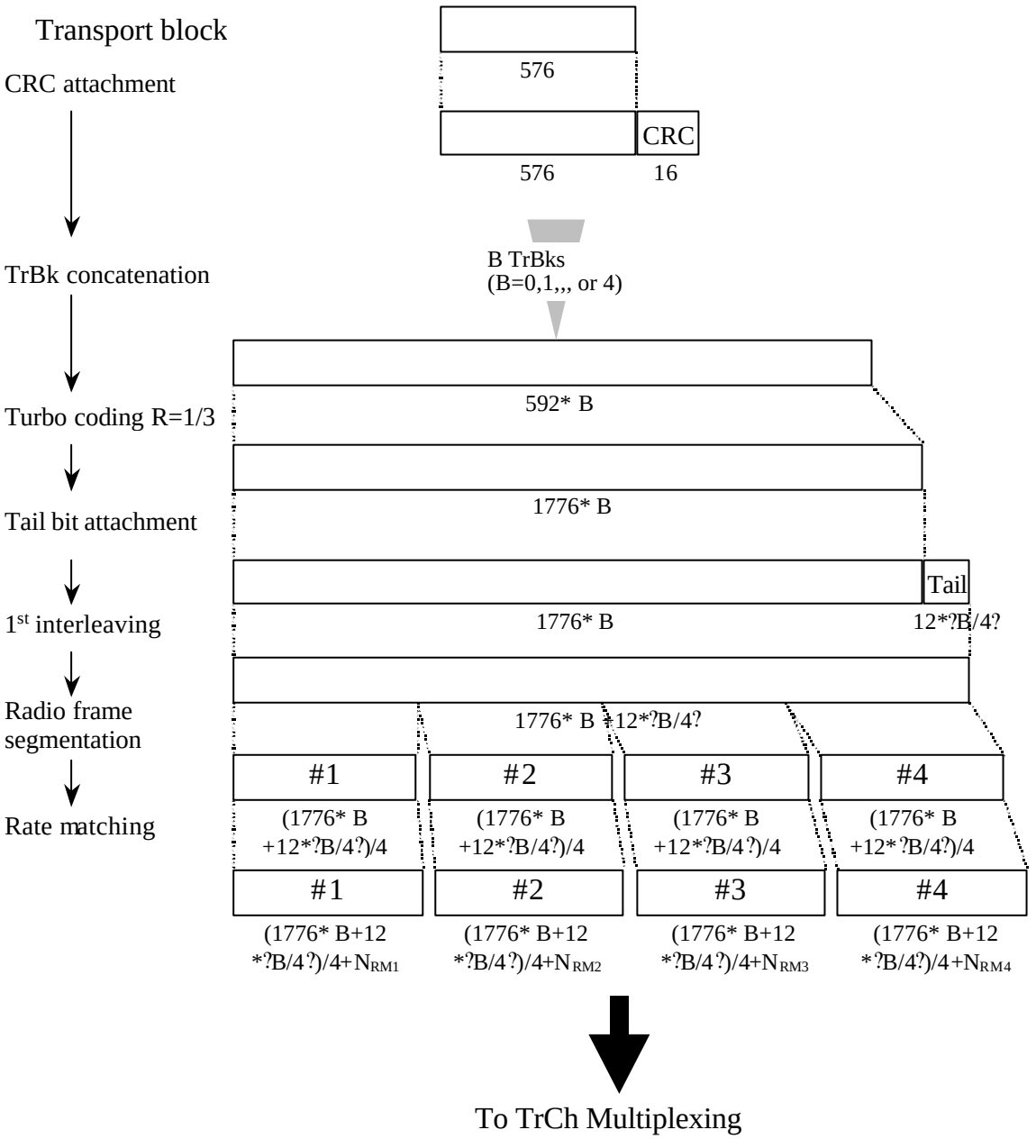


Figure 19: Channel coding and multiplexing example for ~~64/128/144~~28.8/57.6 kbps ~~packet~~ data

4.1.2.2.1.4 Example for 64/128/144 kbps packet data

NOTE: In this example, it is assumed that maximum data rate of RLC payload is 64/128/144 kbps, and MAC and RLC overhead in a transport block is 16 bits.

Table 19: Parameters for 64/128/144 kbps packet data

The number of TrChs		1
Transport block size		336 bits
Transport block Set size	64 kbps	336*B bits (B = 0, 1, 2, 3, 4)
	128 kbps	336*B bits (B = 0, 1, 2, 4, 8)
	144 kbps	336*B bits (B = 0, 1, 2, 4, 8, 9)
CRC		16 bits
Coding		Turbo coding, coding rate = 1/3
TTI		20 ms

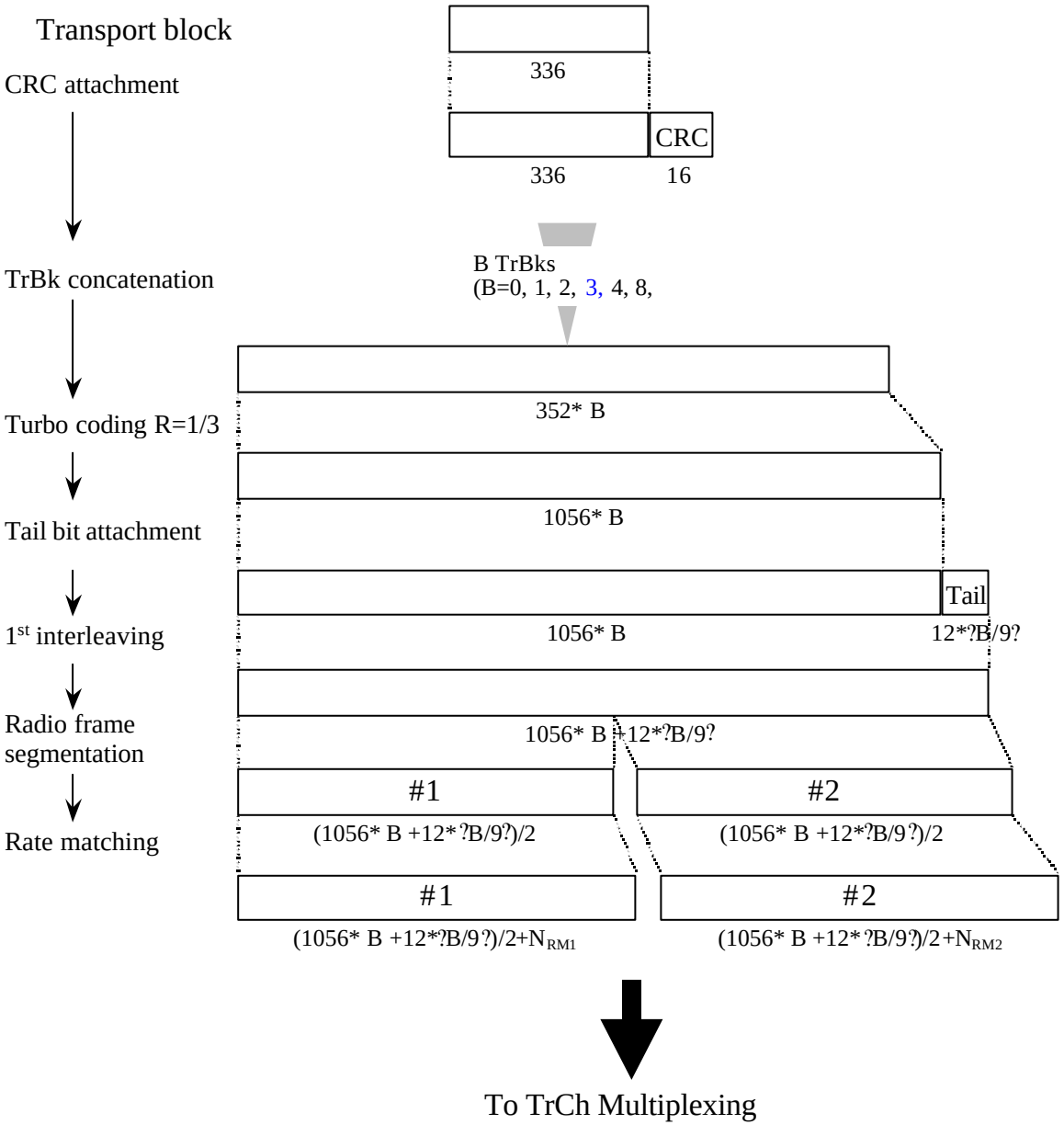


Figure 20: Channel coding and multiplexing example for 64/128/144 kbps packet data

4.1.2.2.1.5 Example for 384 kbps packet data

NOTE: In this example, it is assumed that maximum data rate of RLC payload is 384kbps, and MAC and RLC overhead in a transport block is 16 bits.

Table 20: Parameters for 384 kbps packet data

The number of TrChs		1
Transport block size		336 bits
Transport block Set size	384 kbps	336*B bits (B = 0, 1, 2, 4, 8, 12, 16, 20, 24)
CRC		16 bits
Coding		Turbo coding, coding rate = 1/3
TTI		20 ms

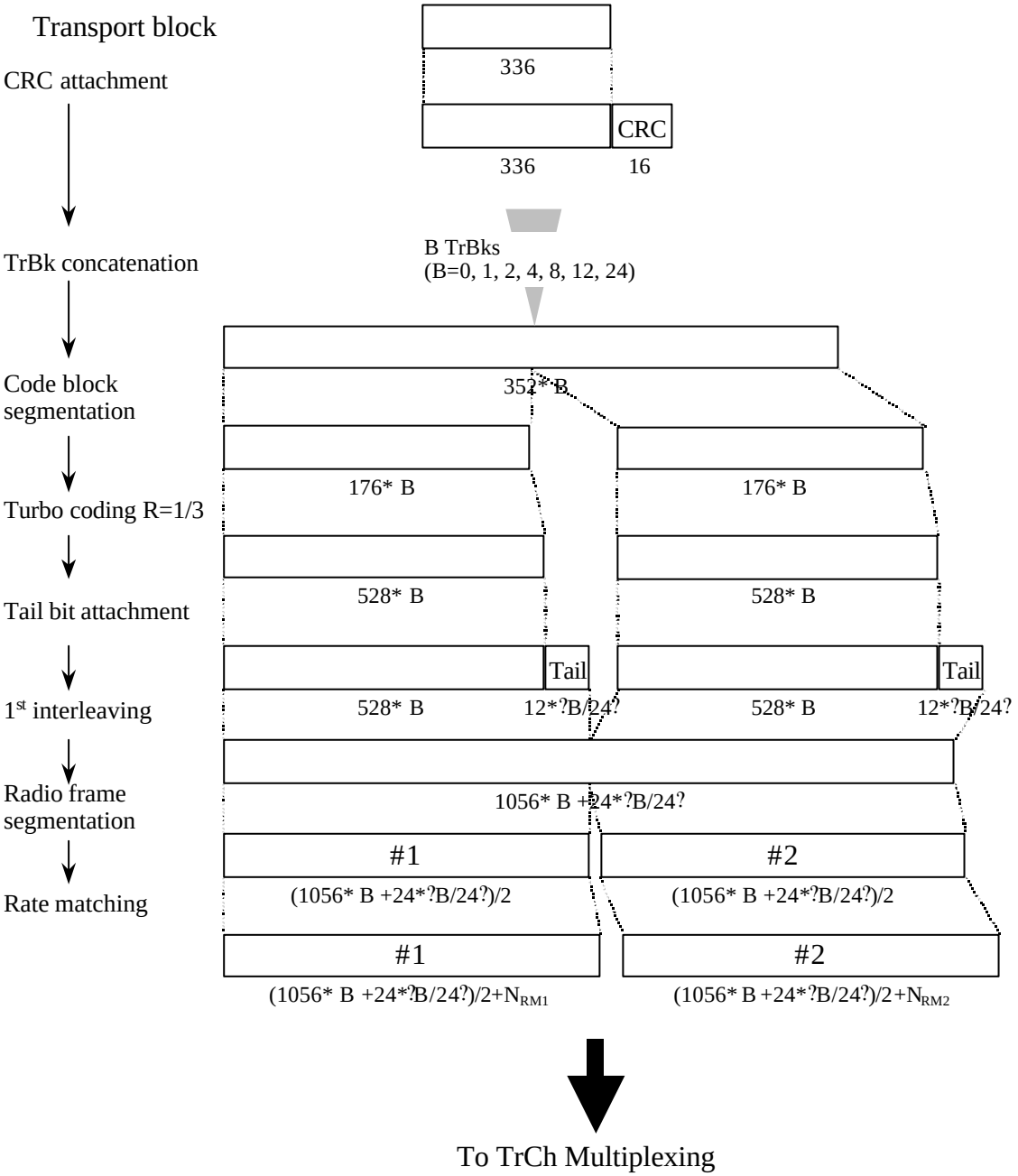


Figure 21: Channel coding and multiplexing example for 384 kbps packet data