

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	003r2	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 <i>(list expected approval meeting # here ?)</i>	for approval for information <input checked="" type="checkbox"/>	strategic <input type="checkbox"/>	<i>(for SMG use only)</i>
		non-strategic <input type="checkbox"/>	

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: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

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

Subject: Corrections for FDD part of TR 25.944

Work item: TR 25.944

Category:	F Correction <input checked="" type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
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(only one category shall be marked with an X)

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 <input type="checkbox"/> ? List of CRs: Other GSM core specifications <input type="checkbox"/> ? List of CRs: MS test specifications <input type="checkbox"/> ? List of CRs: BSS test specifications <input type="checkbox"/> ? List of CRs: O&M specifications <input type="checkbox"/> ? List of CRs:	
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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	$8064 \cdot B_{PCH}$ or $240 \cdot B_{PCH}$ bits ($B_{PCH}=0, 1$)
	FACH1	$360 \cdot B_{FACH1}$ bits ($B_{FACH1}=0, 1$)
	FACH2	$168 \cdot B_{FACH2}$ bits ($B_{FACH2}=0, 1, 2, 3$)
Coding	PCH, FACH2	CC, coding rate = 1/2
	FACH1	TC
TTI		10 ms
The numbers of codes		1
SF		64

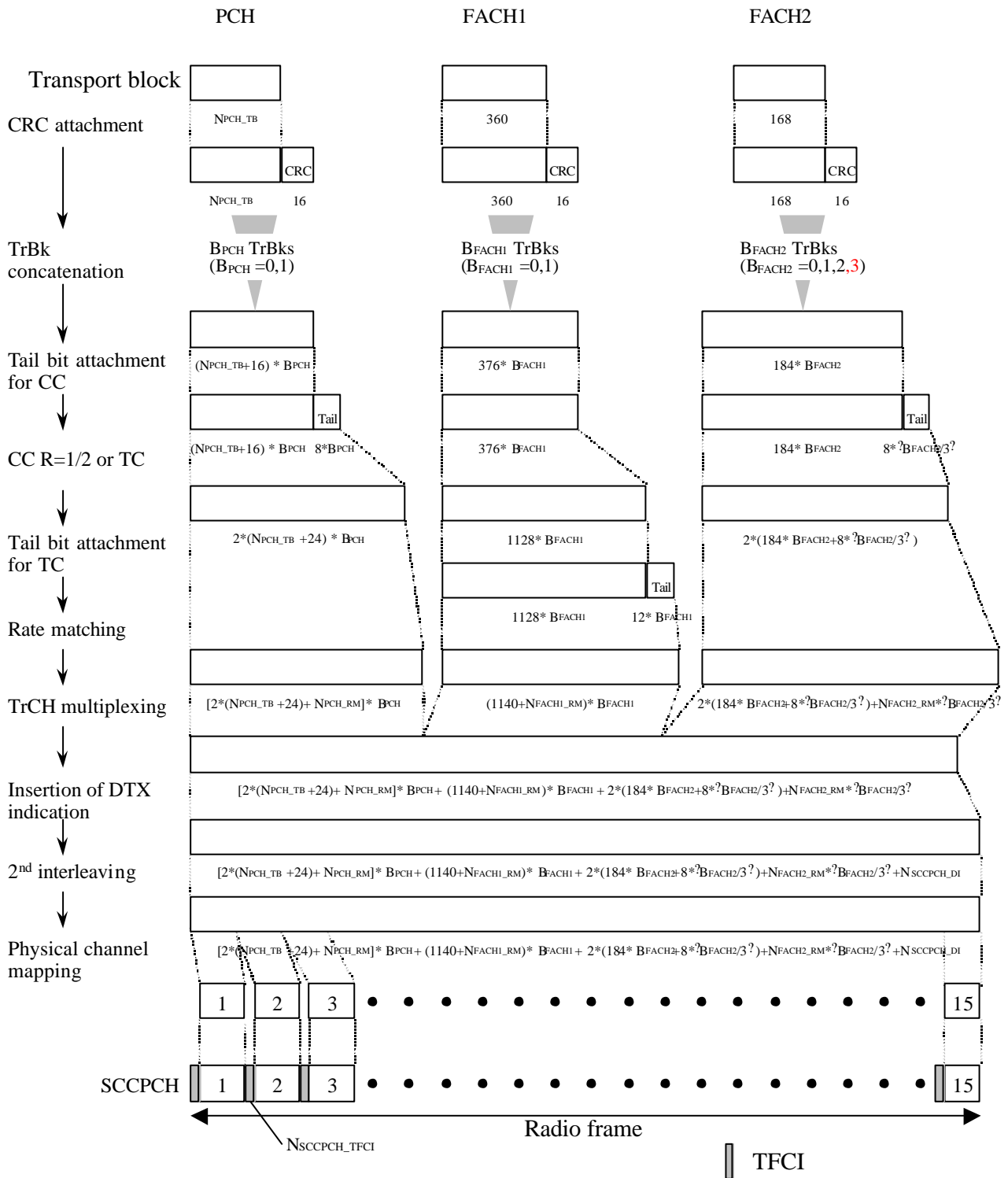


Figure 2: Channel coding and multiplexing example for PCH and FACH

4.1.1.3 Example for DCH

4.1.1.3.1 DCH-> Radio frame segmentation

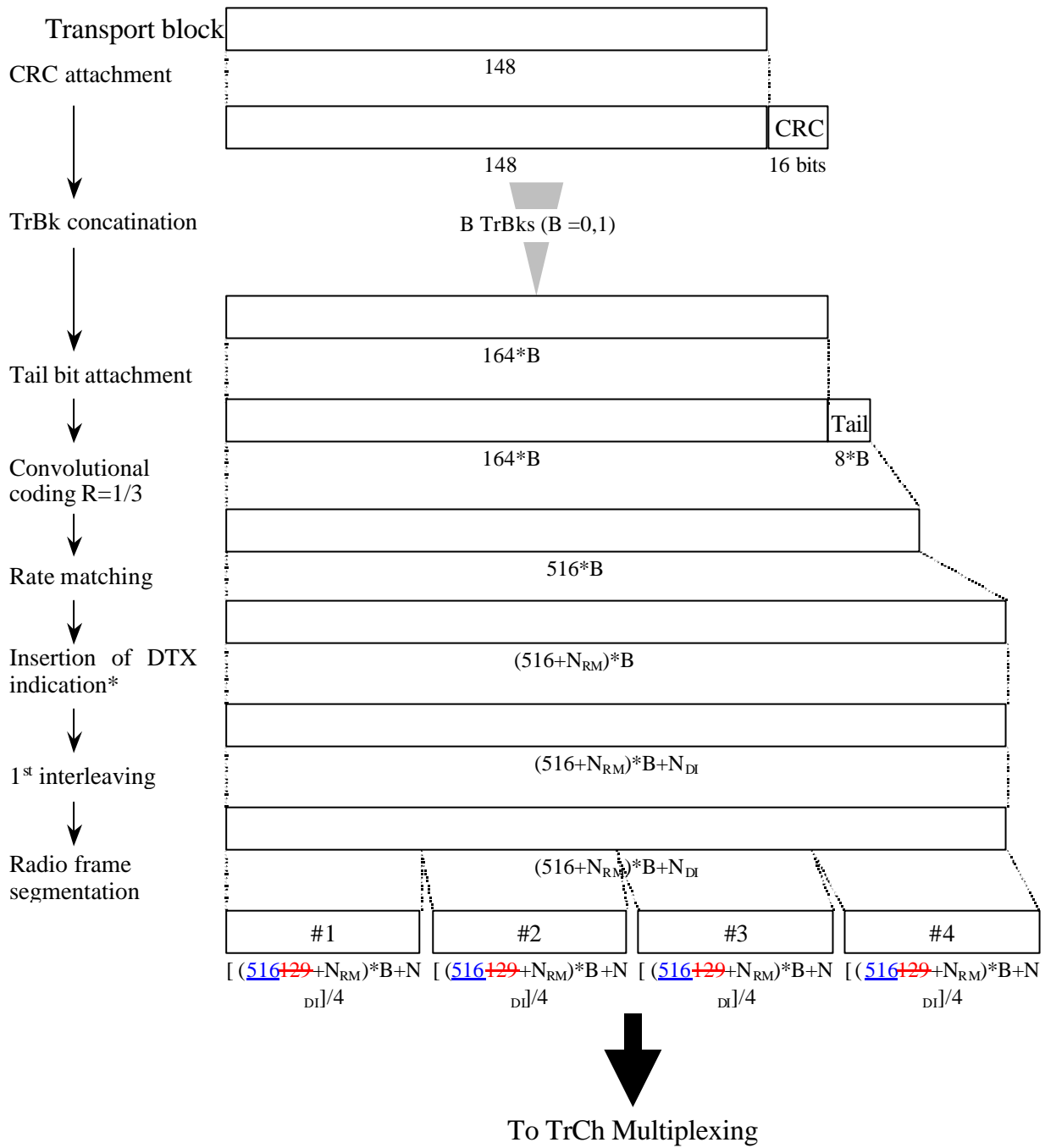
4.1.1.3.1.1 Example for 3.4 kbps data

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.

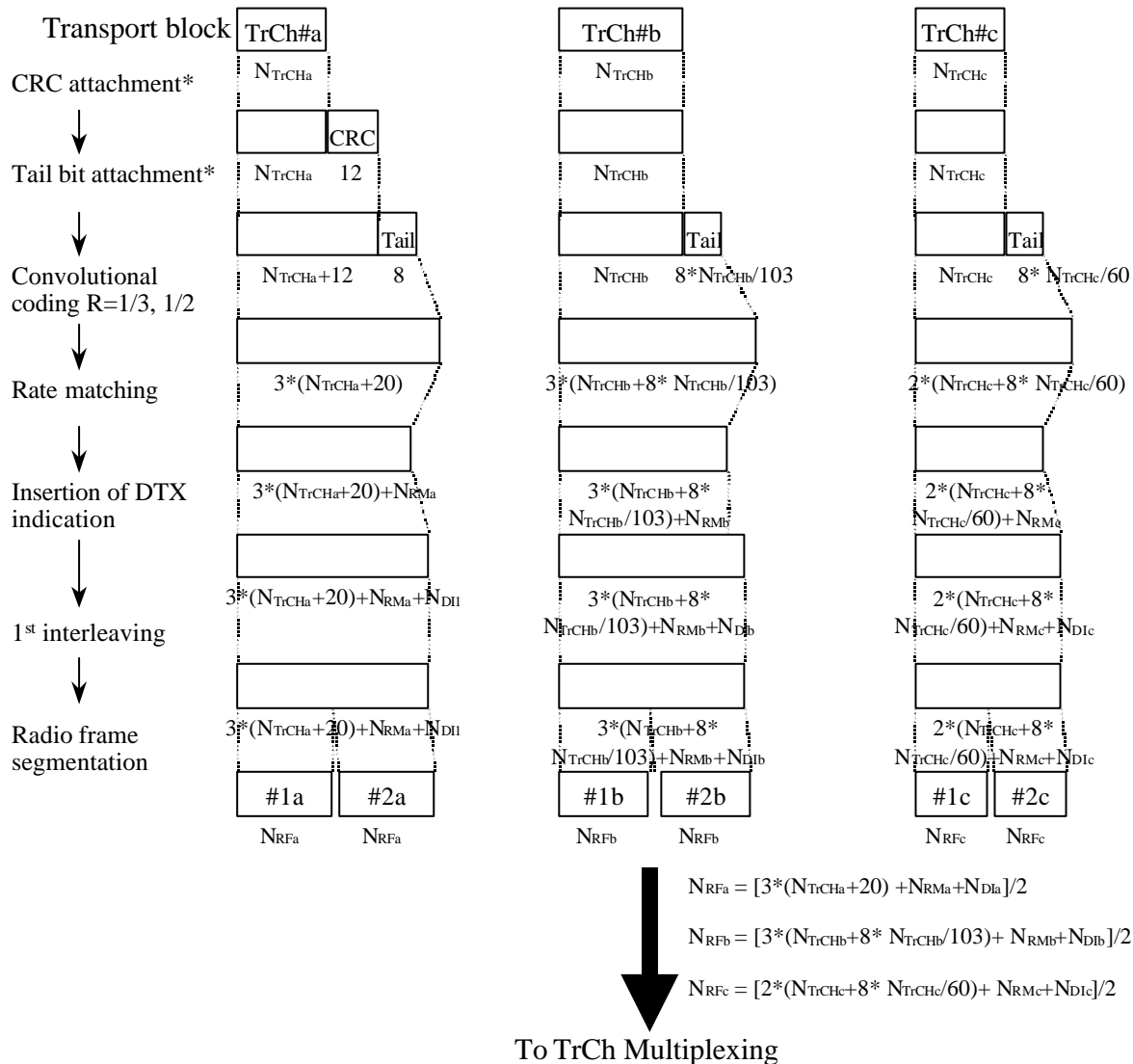
Figure 3: Channel coding and multiplexing example for 3.4 kbps data

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	$N_{TrCh#a}=0, 39$ or 81 bits
	TrCH#b	$N_{TrCh#b}=0$ or 103 bits
	TrCH#c	$N_{TrCh#c}=0$ or 60 bits
TFCS	#1	$N_{TrCh#a}=1*81, N_{TrCh#b}=1*103, N_{TrCh#c}=1*60$ bits
	#2	$N_{TrCh#a}=1*39, N_{TrCh#b}=0*103, N_{TrCh#c}=0*60$ bits
	#3	$N_{TrCh#a}=1*0, N_{TrCh#b}=0*103, N_{TrCh#c}=0*60$ 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 $N_{TrCh#a} = 0$ 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	28.8 kbps	$576 \cdot B$ bits ($B = 0, 1, 2$)
	57.6 kbps	$576 \cdot B$ bits ($B = 0, 1, 2, 3, 4$)
CRC		16 bits
Coding		Turbo coding, coding rate = 1/3
TTI		40 ms

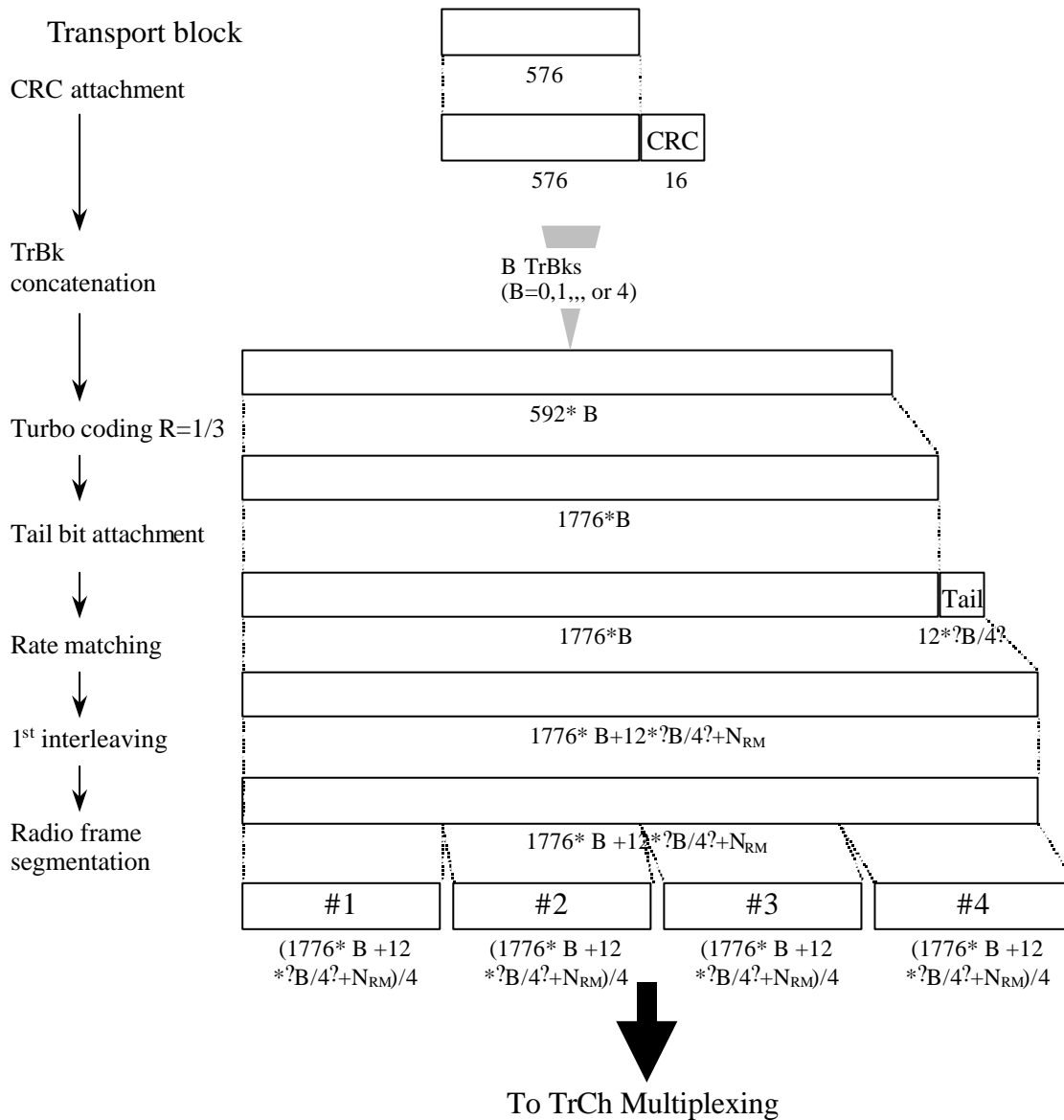


Figure 5: Channel coding and multiplexing example for 28.8/57.6 kbps data

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	

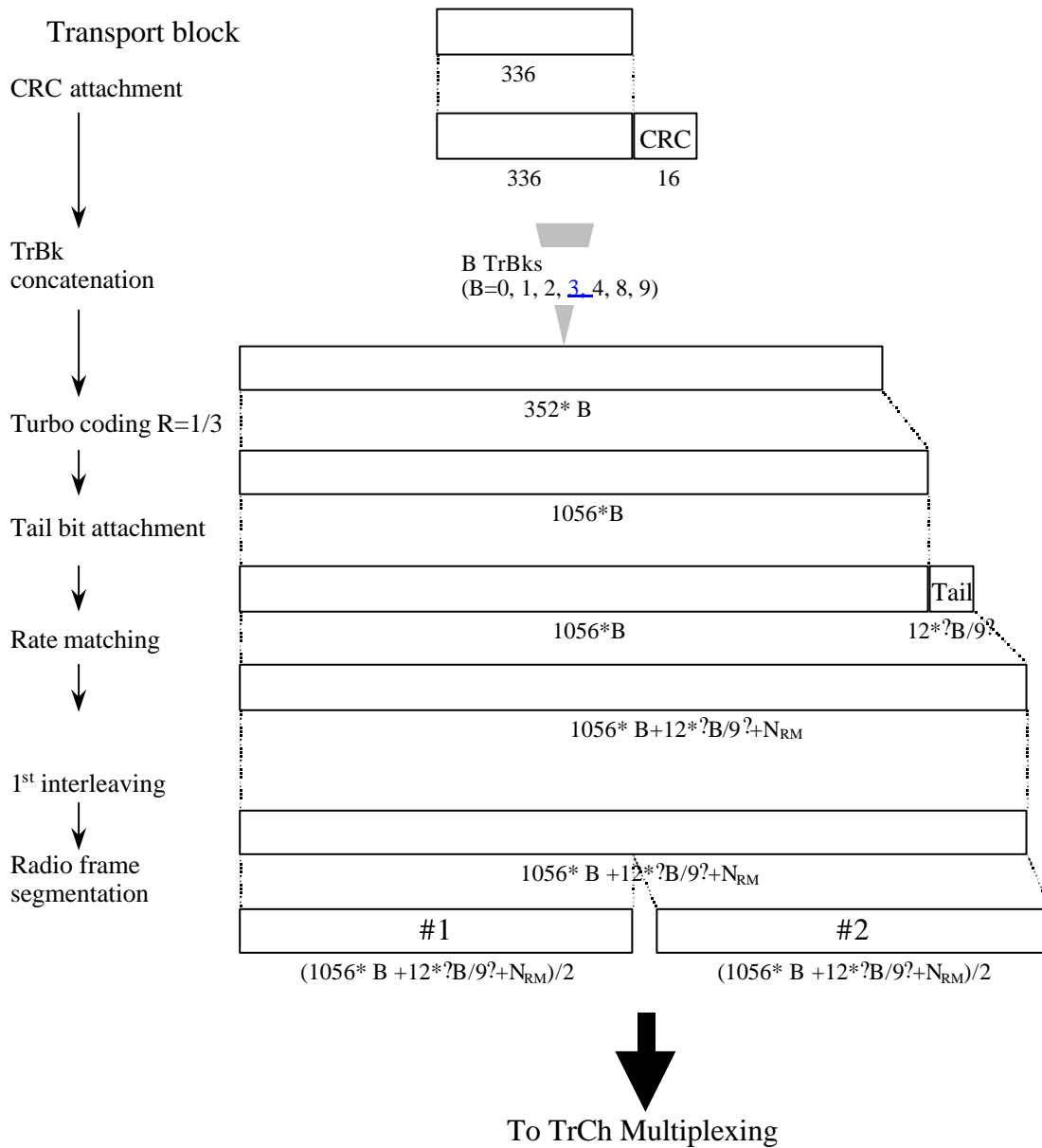


Figure 6: Channel coding and multiplexing example for 64/128/144 kbps packet data

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 Setsize	336*B bits (B = 0, 1, 2, 4, 8, 12 for TTI=10 ms, B = 0, 1, 2, 4, 8, 12, <u>16, 20, 24</u> for TTI=20 ms)
CRC	16 bits
Coding	Turbo coding, coding rate = 1/3
TTI	10 or 20 ms

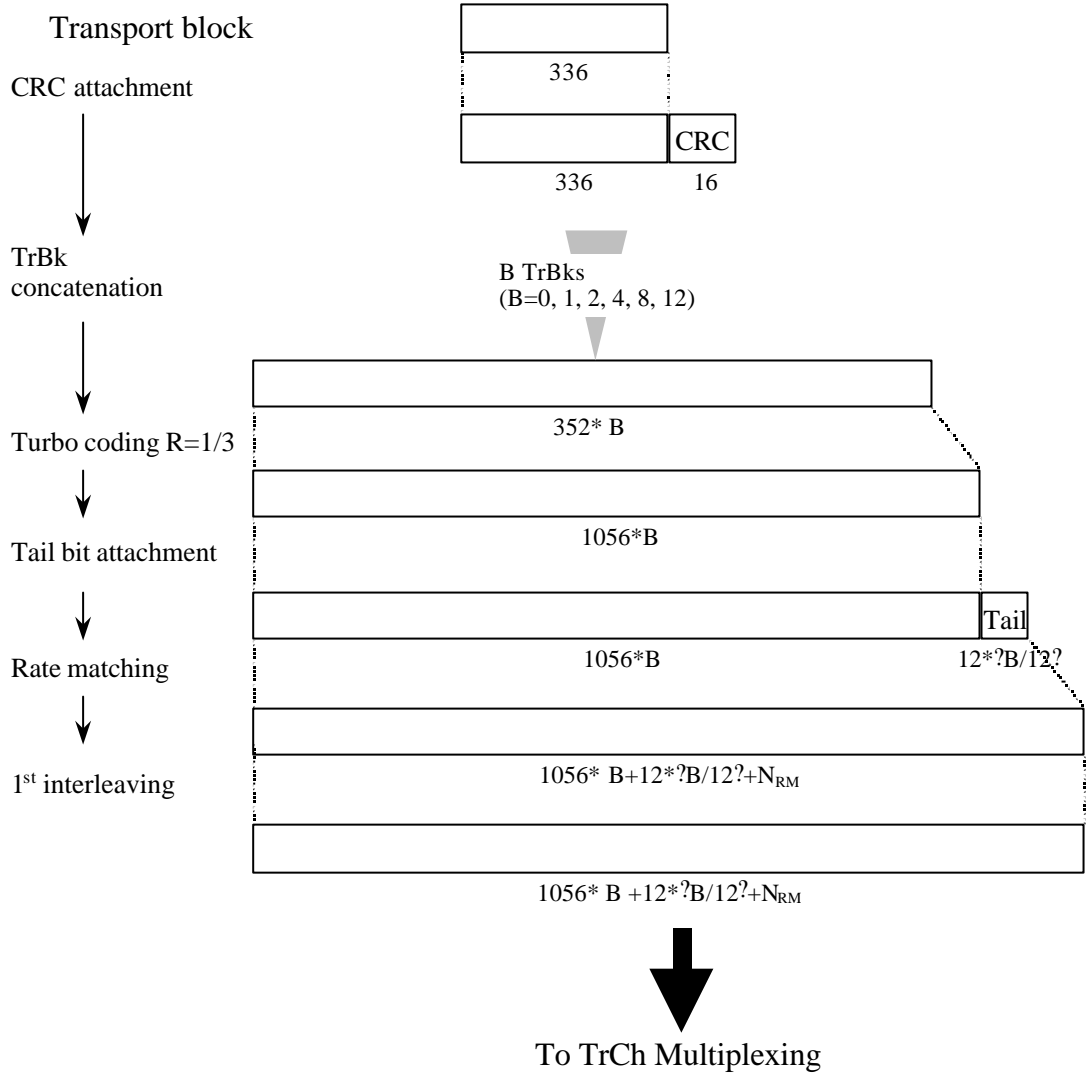


Figure 7: Channel coding and multiplexing example for 384 kbps packet data in case of TTI=10 ms

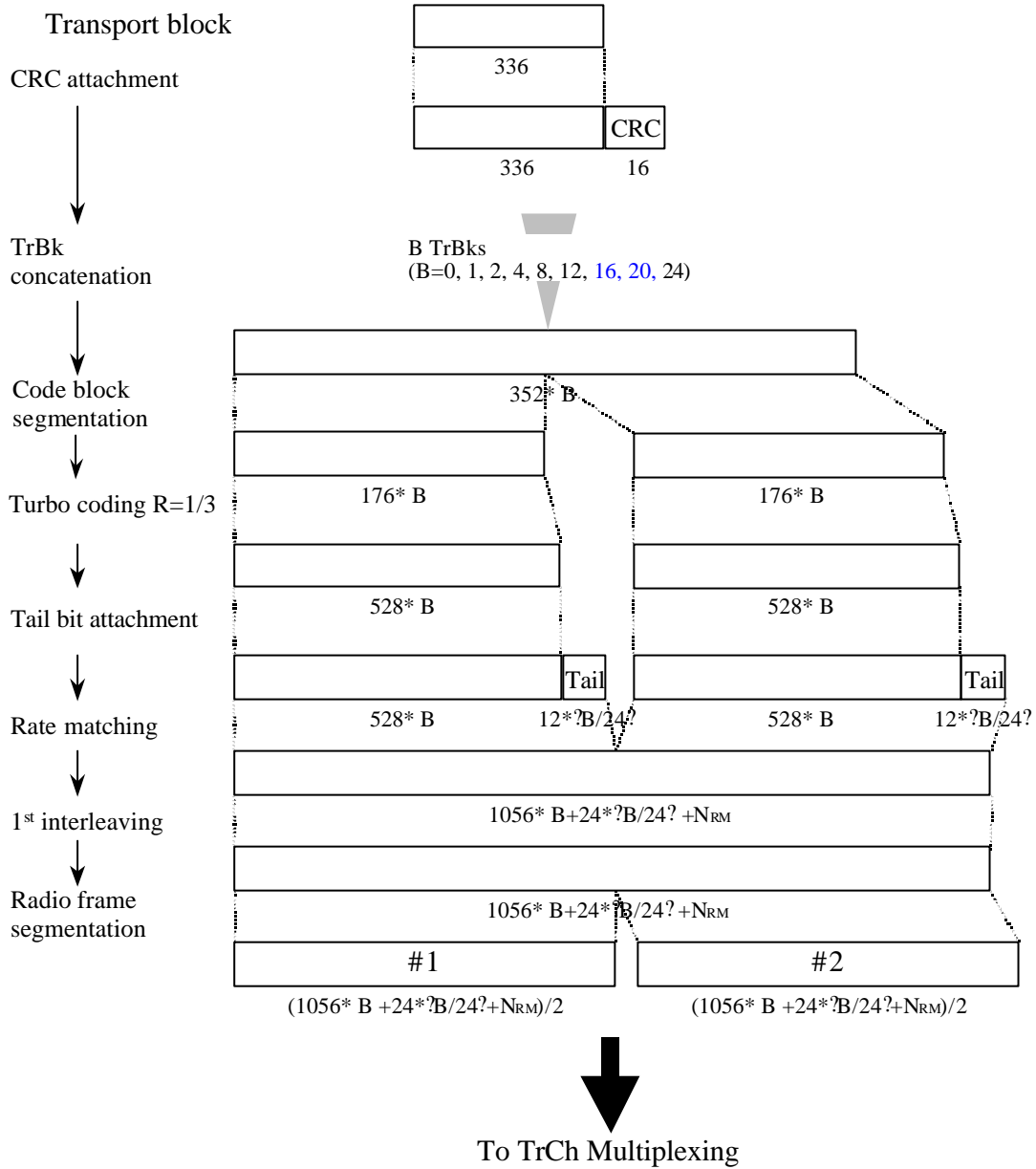


Figure 8: Channel coding and multiplexing example for 384 kbps packet data in case of TTI=20 ms

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

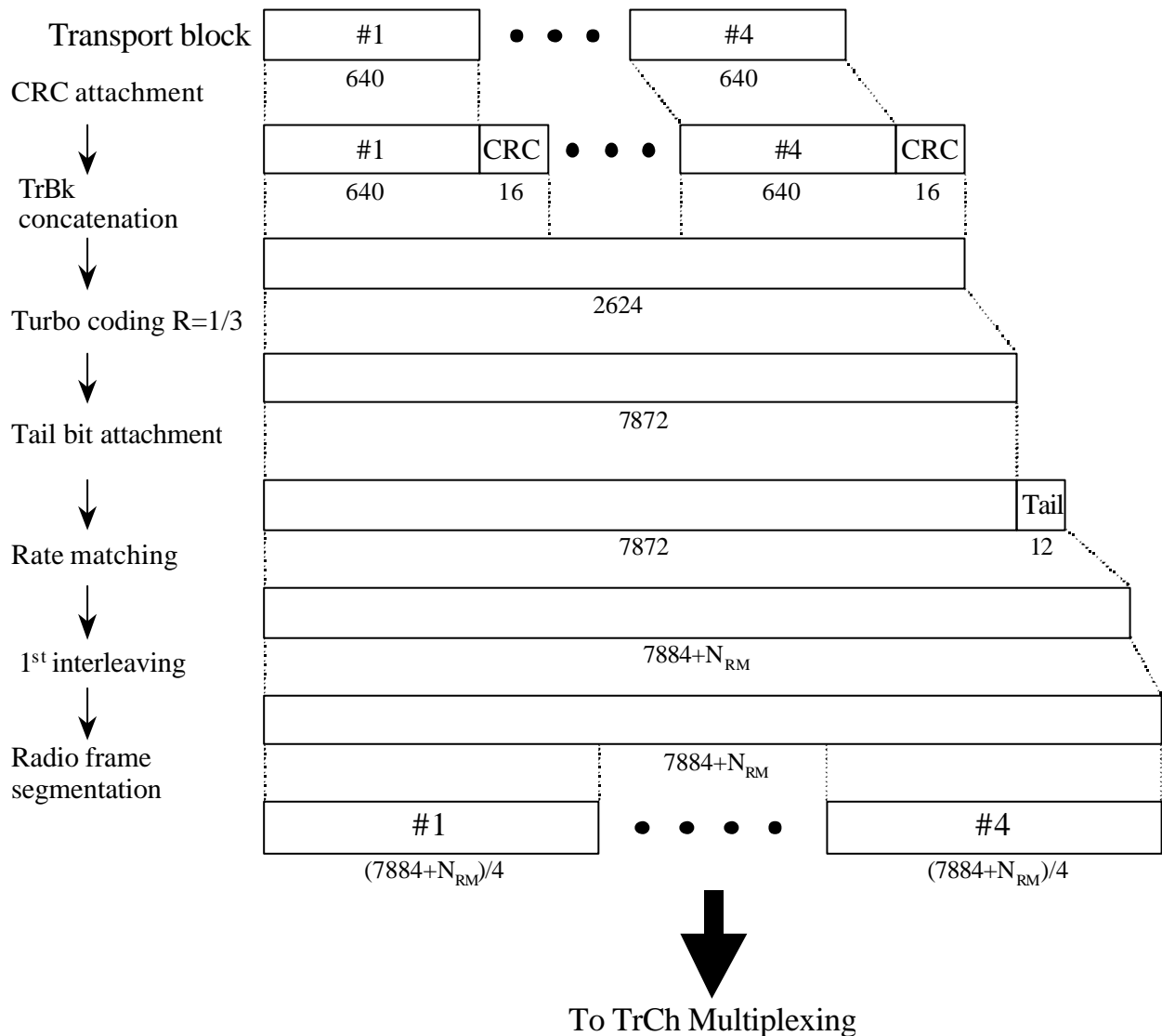


Figure 9: Channel coding and multiplexing example for 64 kbps data

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.

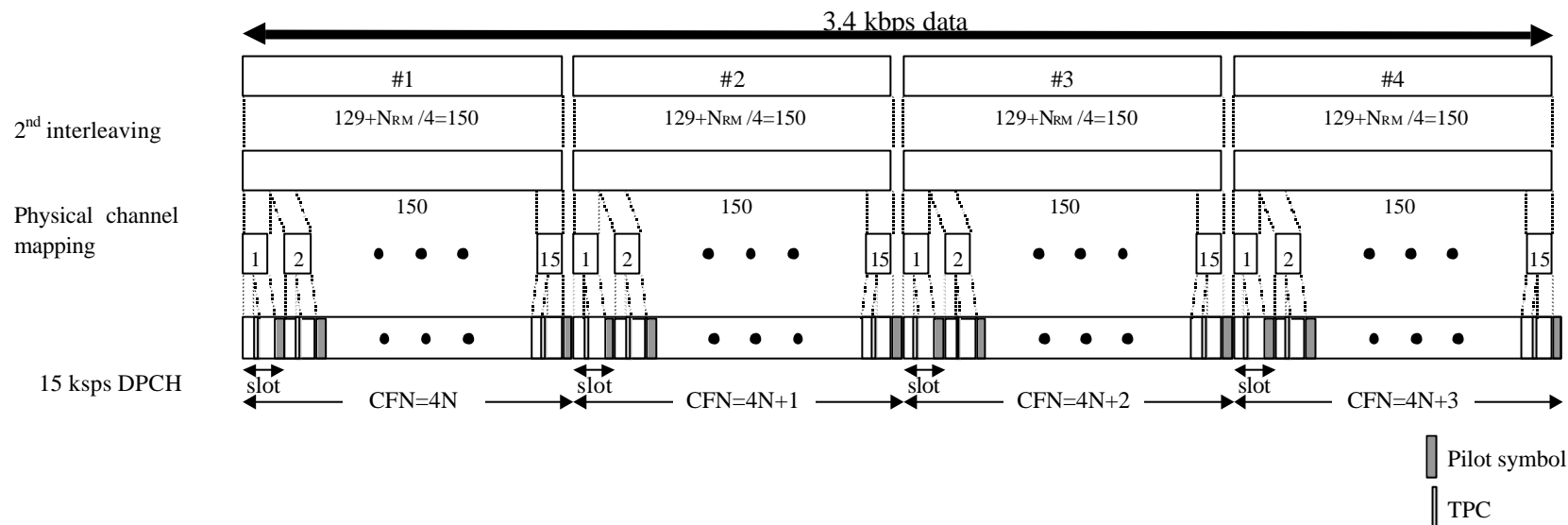


Figure 10: Channel coding and multiplexing example for stand-alone mapping of 3.4 kbps data

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

Symbol rate (kps)	N _{pilot} (bits)	N _{TFCI} (bits)	N _{TPC} (bits)	N _{data1} (bits)	N _{data2} (bits)
15	48	0	2	2	128

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	2040 ms
Minimum spreading factor	32

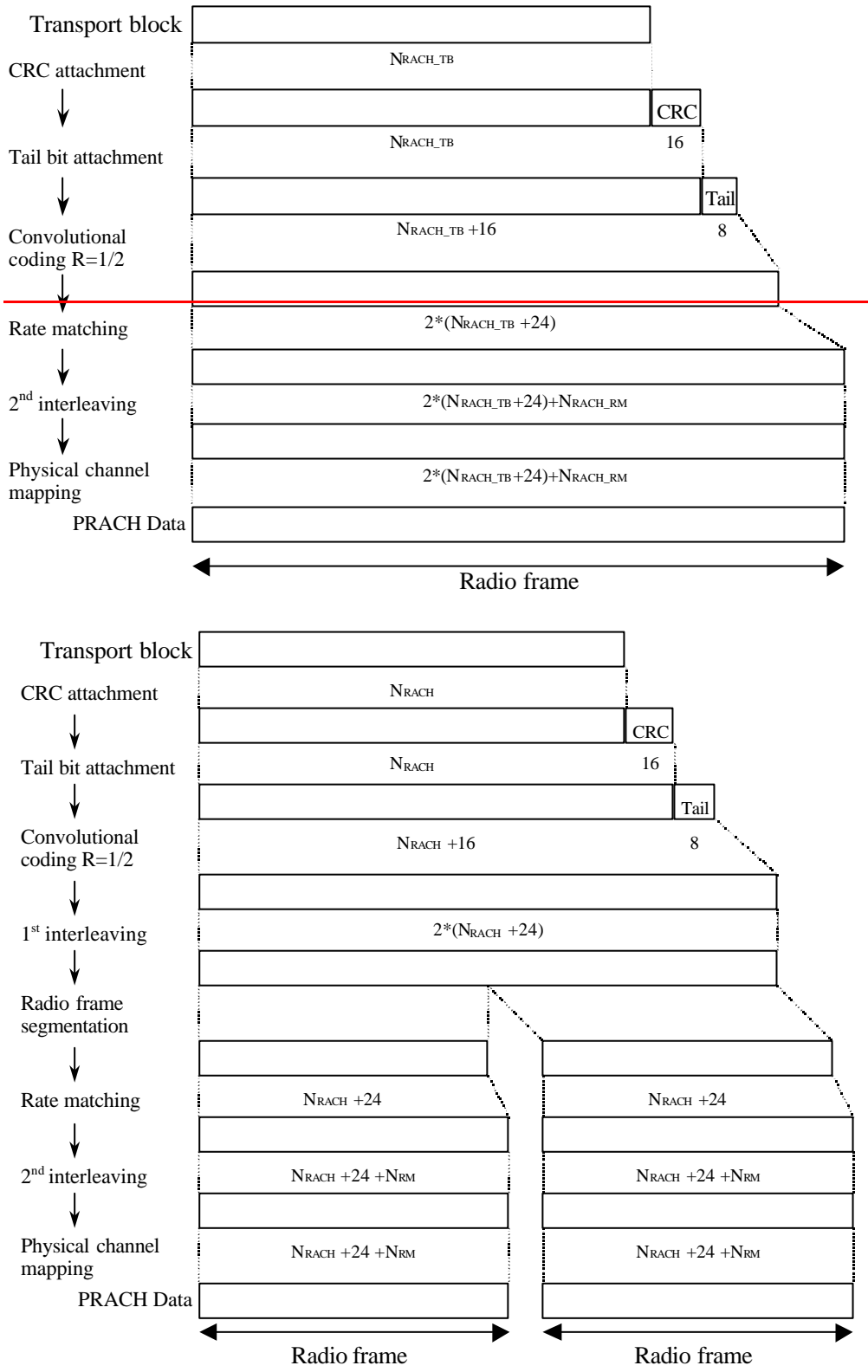


Figure 16: Channel coding and multiplexing example for PRACH

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

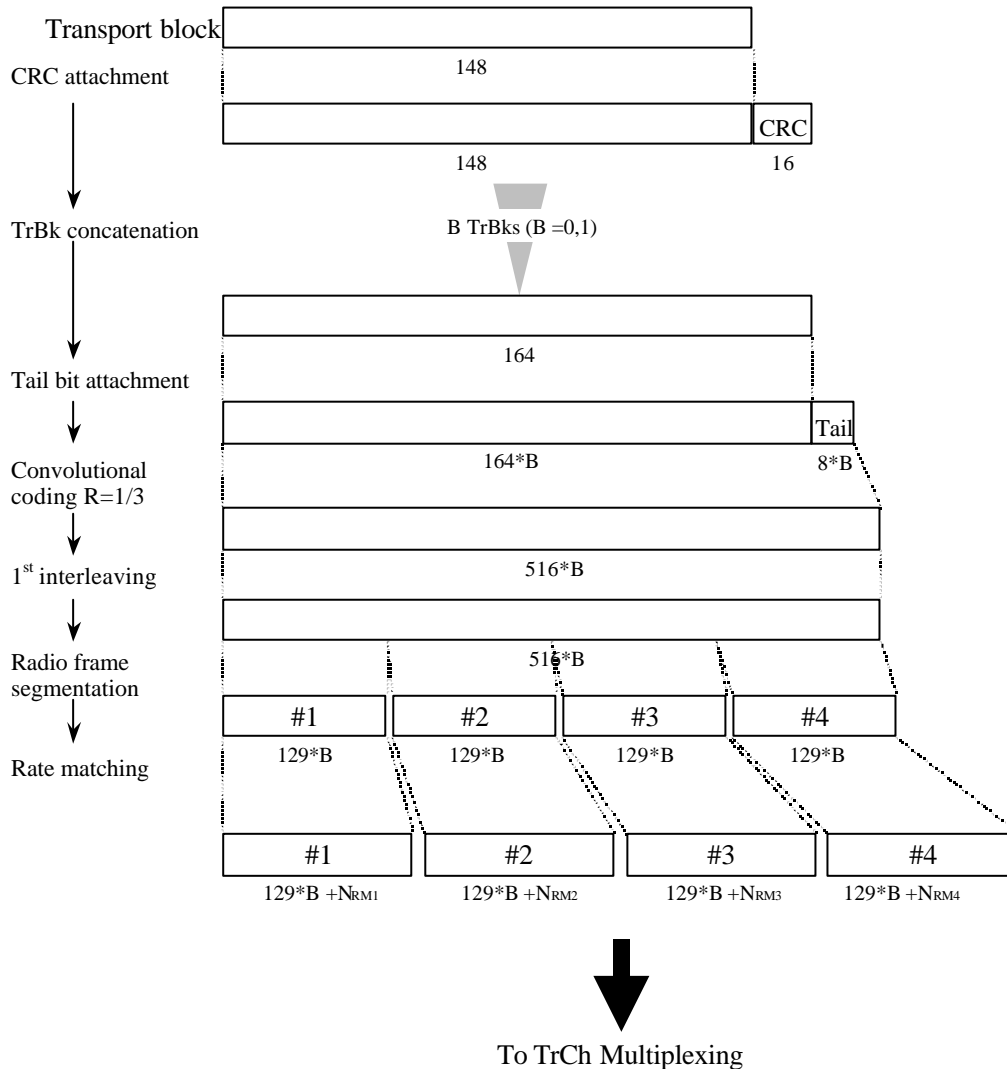


Figure 17: Channel coding and multiplexing example for 3.4 kbps data

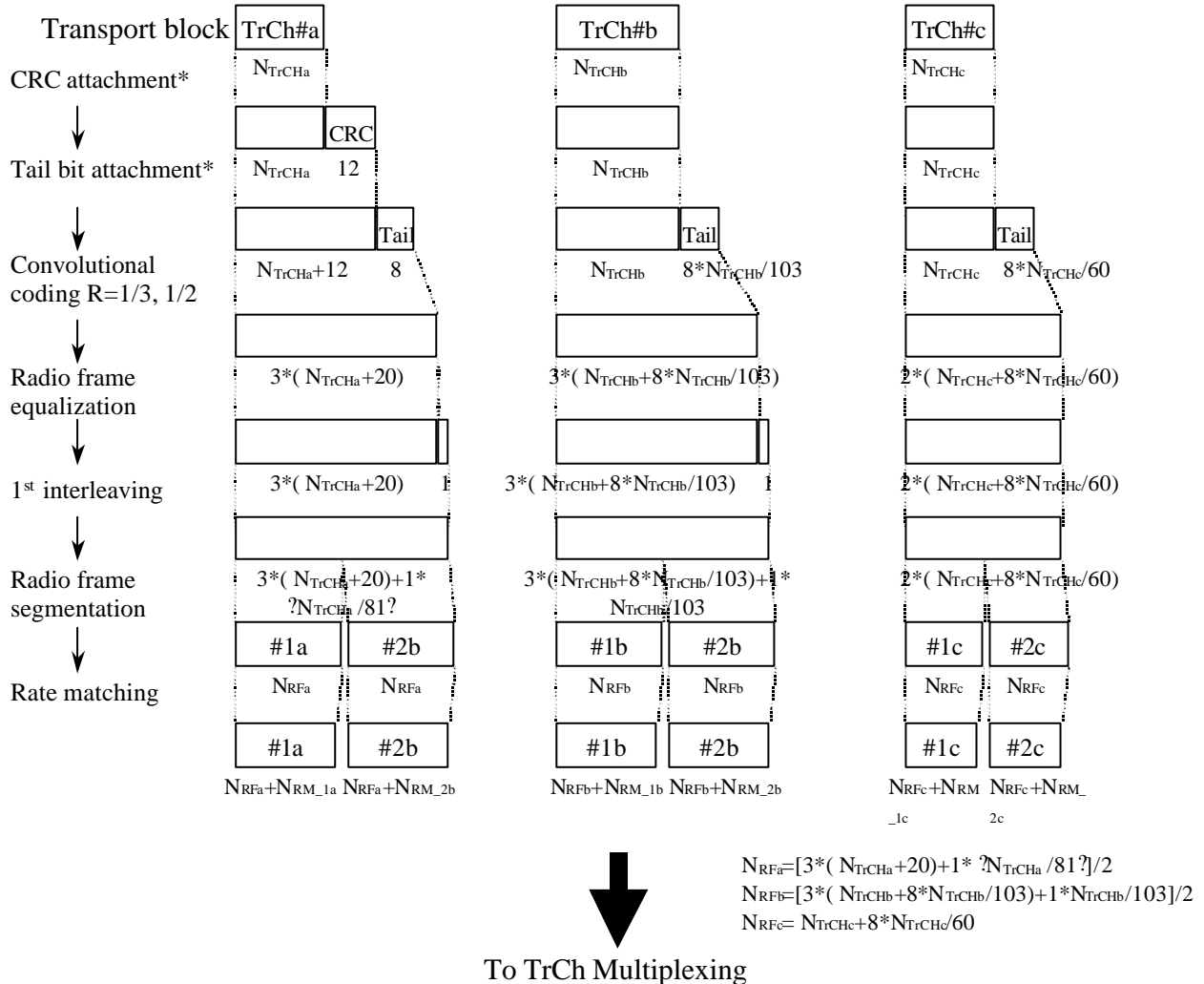
4.1.2.2.1.2

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 81 bits
	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	$N_{TrCHa}=0*81, N_{TrCHb}=0*103, N_{TrCHc}=0*60$ 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

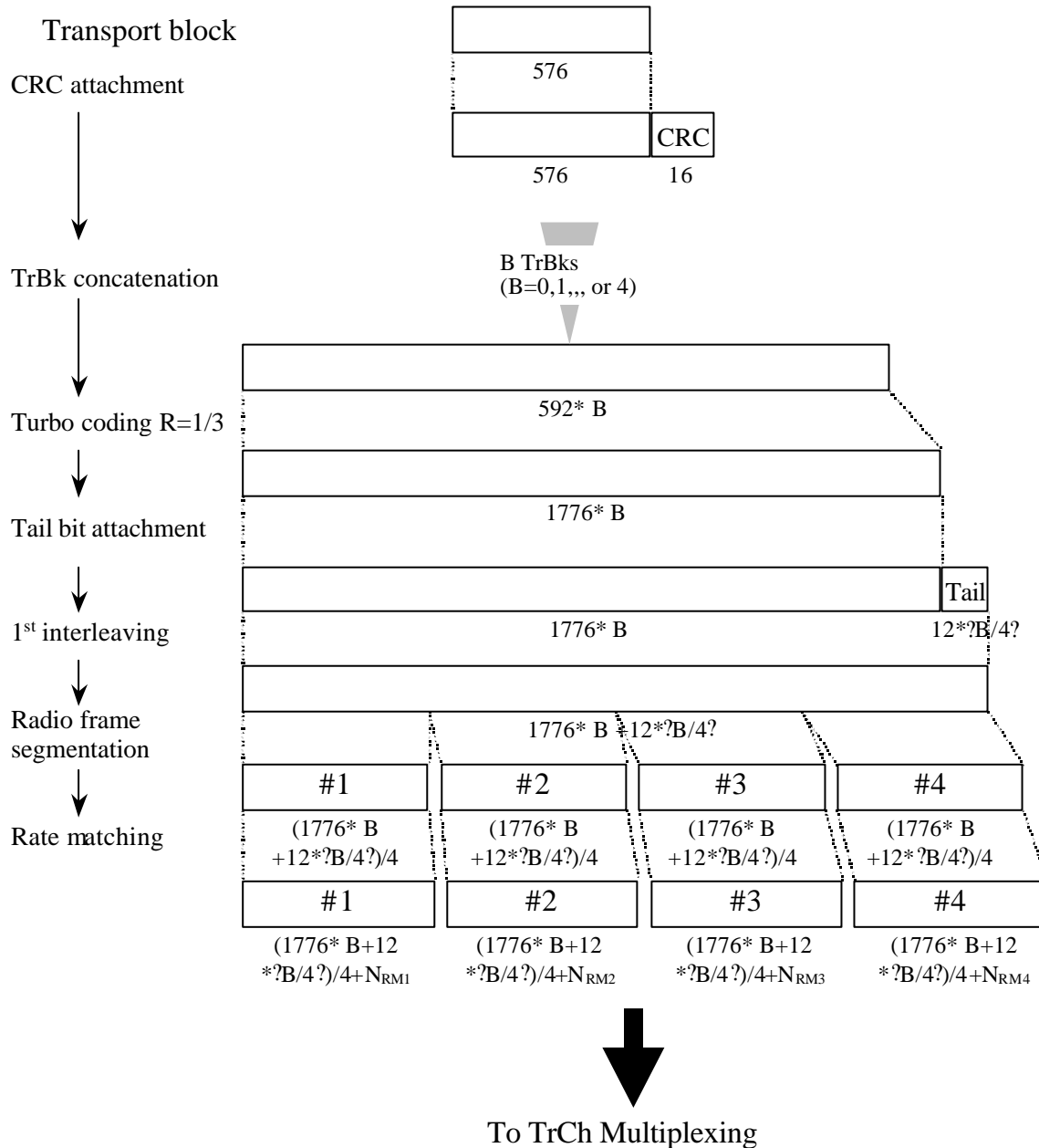


Figure 19: Channel coding and multiplexing example for 28.8/57.6 kbps packet data

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	

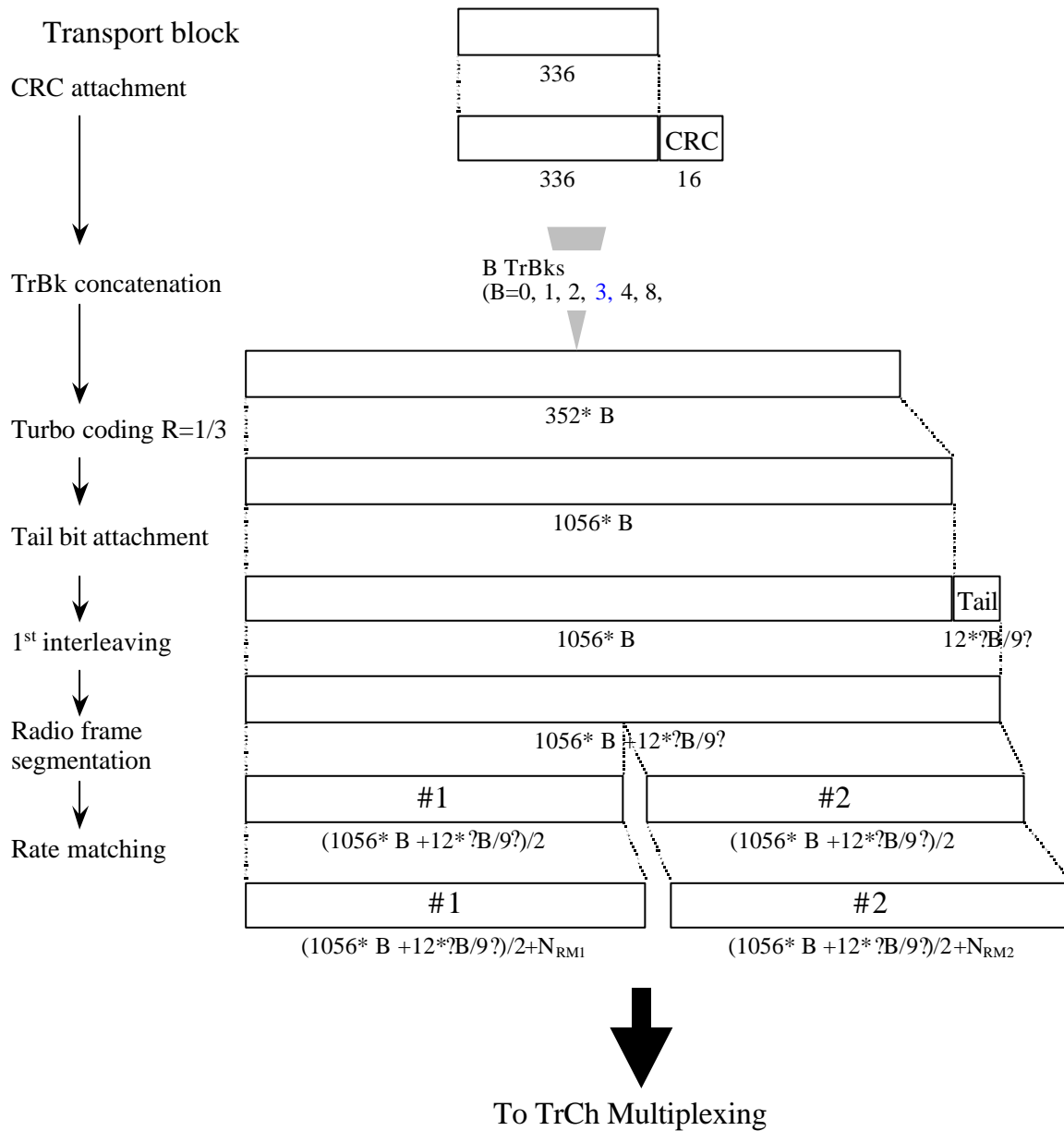


Figure 20: Channel coding and multiplexing example for 64/128/144 kbps packet data

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

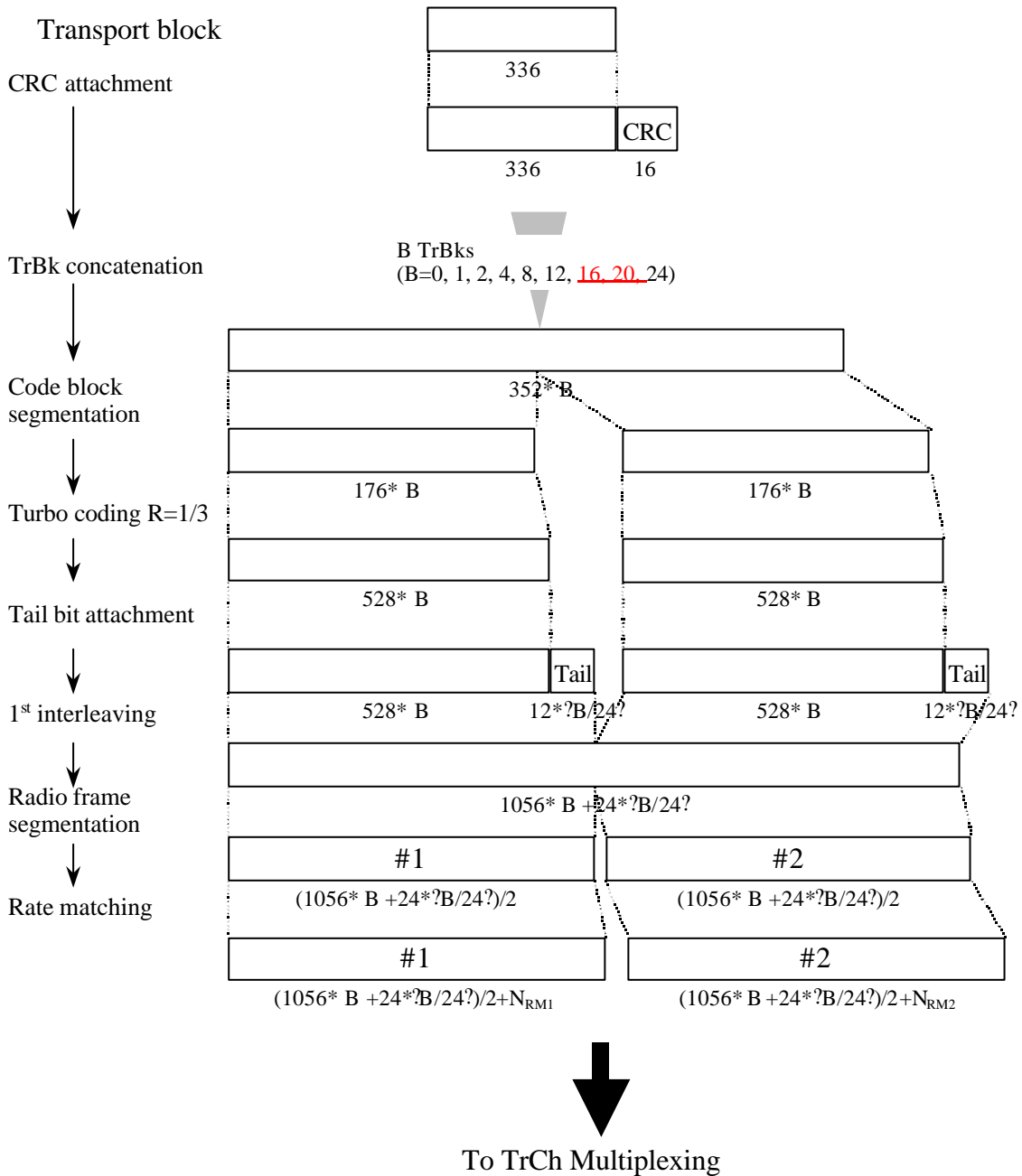


Figure 21: Channel coding and multiplexing example for 384 kbps packet data